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ABSTRACT

This report describes the findings of a study conducted for the New Jersey State Library (NJSL) with two major objectives: (1) to determine how much it costs two State Contract Libraries (the Central Library of the Newark Public Library and the Bureau of Law and Reference of the New Jersey State Library) to provide supplemental question handling and interlibrary loan and photocopying services to libraries in New Jersey; and (2) to provide NJSL with recommendations regarding compensation strategies for the next 5 years. The first of nine chapters includes a description of the objectives and phases of the study, the format of the report, and background information. Chapter 2 focuses on the process used to establish working definitions of major services, i.e., reference services, interlibrary loan, and photocopying. Chapter 3 presents a model of question handling which was developed to clarify and define which activities needed to be costed. Chapter 4 describes the data gathering effort. Chapters 5 through 7 focus on the development and implementation of the cost finding model. Chapter 8 reports the results of the cost finding model, and the final chapter presents recommendations, including strategies for compensating the State Contract Libraries. Appendixes include a glossary of terms and copies of two forms developed to profile staff time and the characteristics of reference resources. (61 references) (GL)

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COSTING QUESTION HANDLING AND ILL/PHOTOCOPYING

A Study of Two State Contract Libraries In New Jersey

VOLUME I:

The Study Process, Findings, and Recommendations

Prepared by
Barbara M. Robinson
For the New Jersey State Library

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January 1989

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In addition to the core Working Group, staff from the three institutions provided data, information, as well as comments on the working papers which were produced during the course of the study. Over 100 staff at the two libraries responded to a questionnaire administered during the study, and some attended meetings and commented on working papers.

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Members of the core Working Group:

- 0 Emily J. Matonti, Assistant Director for Central Library Services, NPL;
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- 0 William J. Dane, Supervising Librarian, Art and Music Division;
- 0 Kay Deodene, Principal Librarian, Interlibrary Services;
- 0 Sallie B. Hannigan, Supervising Librarian, Humanities Division;
- 0 James Keenan, Accountant; and
- 0 Larry Schwartz, Supervising Librarian, Sciences Division.

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- 0 Marjorie Garwig, Supervising Law Librarian;
- 0 Robert E. Lupp, Supervisor of New Jersey Reference Services;
- 0 Oliver P. Gillock, Coordinator of Library Planning and Development;
- 0 Brian Goldsmith, Administrative Analyst;
- 0 Kathleen Mulroy, State Library Consultant; and
- 0 Beverly D. Railsback, Librarian.

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1. INTRODUCTION

1.1 Objectives and Phases of the Study

In a request for quotation (RFQ), the New Jersey State Library asked the following questions: How much does it cost two State Contract Libraries (SCLs) -- the Newark Public Library (NPL) and the State Library (NJSL) -- to deliver reference and interlibrary loan (ILL) services to libraries in the State? And what strategy or strategies should the State consider in compensating the two libraries for providing these "supplemental" services? The objective of this study is two-fold. It is to:

- (1) Cost the delivery of "supplemental reference" and "supplemental interlibrary loan" services, provided by two SCLs; and to
- (2) Develop a strategy to use in compensating NPL and the State Library for providing these two services.

We developed a cost finding model to determine whether the level of State support in 1987 covered the cost of providing these two service to libraries in the Network. We set out to determine to what extent the unit cost of providing these two services is fully subsidized. Once we know whether the present level of state compensation covers at least the marginal cost or, at best, the average unit cost incurred by the two libraries of delivering the service statewide, NJSL is in a position to consider revising the present compensation strategy.

Information on unit costs provides an objective basis for the State Librarian and each of the two libraries to discuss the level of supplemental service desired and the appropriate level of compensation. Economic analysis can provide a framework for discussion. Deciding how much, and what quality, supplemental service is needed, however, is a public policy issue. It is up to the State Librarian to make these policy choices in dialogue with the SCLs. Chapter 9 provides recommendations for doing so. The study focuses on costs alone, and does not attempt to evaluate the quality or efficacy of the service provided by the two libraries.

While the RFQ refers to the two entities as the Newark Public Library (NPL) and the New Jersey State Library (NJSL), the focus of this study is on portions of these organizations. In the case of Newark, we focus on the Central Library and the Business Library, which we call NPL Central. Similarly, for NJSL, our focus is on the Bureau of Law and Reference (BL&R) at the New Jersey State Library. Chapters 6 and 7 amplify on the rationale for this approach.

Throughout the report, we continue to refer to NPL and NJSL. When we do so, the reference is sometimes used as shorthand to refer to the administrative staff of the two entities, and sometimes to the entire physical entities. For example, in the discussion of the cost finding model, we examine both the budgets of NPL and NJSL, and the budgets of NPL Central and the BL&R.

The study involves seven phases, with each building on the findings from the previous phase. The phases are: (1) defining reference and ILL services; (2) creating cost centers and developing a methodology for a cost finding model; (3) identifying and collecting data for the cost finding model; (4) creating a program budget with cost centers for each library; (5) allocating the operating budget; (6) calculating the marginal and average costs of each service; and (7) developing recommendations.

In the course of this study, we created two models: a question handling model and a cost finding model. The question handling model provides a stylized way of describing the decisions reference librarians make as they handle a reference question. This first model helped us to identify what activities go into the process of question handling. We interviewed staff to determine how much time each person spent on the question handling process, as compared to performing other reference functions or non-reference functions. We then converted their time estimates into salary costs. These labor costs are incorporated into the cost finding model. This second model brings together the variables which, when taken as a whole, provide the average unit cost of delivering question handling and ILL/photocopying services.

1.2 The Study Report

The study report consists of two volumes: Volume I, "The Study Process, Findings, and Recommendations," and Volume II, "Annexes to the Study." Volume I includes the study report in nine chapters, a bibliography and a dictionary of abbreviations and definitions. Volume II contains materials used and/or developed during the study process, which are compiled to document the conduct of the study. A separate executive summary is also available highlighting the study process and findings.

Volume I

Chapter 2 focuses on the definition process and presents a model of question handling which was developed to clarify and define what activities needed to be costed. Chapter 3 presents a model of question handling. Chapter 4 describes the data gathering effort. Chapters 5 through 7 focus on the development and implementation of the cost finding model. Chapter 8 reports the results of the cost finding model and chapter 9 presents the recommendations. The recommended strategies for compensating NPL Central and the BL&R are also presented in Chapter 9.

The appendices to Volume I contain a dictionary of terms and copies of two forms developed to profile staff time and the characteristics of reference resources. The dictionary includes three sections: abbreviations and definitions of organizational entities used throughout the study; definitions of general reference and ILL-related functions; and economic and accounting terms. There is also a bibliography, which is not intended to be exhaustive. It lists monographs and journal articles which are cited in the report, as well as items which were consulted but which are not specifically cited.

Volume II

The annexes to the report bring together back-up material, including preliminary tables, which provide an audit trail for those who are interested in retracing the steps involved in gathering and refining data for study. Also included in the annexes are reports prepared by staff at NPL characterizing their collections using the conceptual framework applied during the study process.

1.3 Background

The Central Library of the Newark Public Library (NPL Central) and the Bureau of Law and Reference of the New Jersey State Library (BL&R) have built substantial collections over the years in a number of subject areas. To make it possible for libraries in New Jersey to supplement their own holdings by drawing on these stronger resources, the New Jersey State Library (NJSL) contracts annually with the State Contract Libraries (SCLs) to provide two types of service: "supplemental reference," and "supplemental interlibrary loan." In 1987, in return for providing these services and as an incentive to continue to share, NPL and the BL&R received \$350,000 and \$100,000 respectively from the NJSL.

By drawing on the resources of NPL Central and the BL&R, librarians in New Jersey are able to "supplement" their libraries' "regular" reference services and interlibrary loan services. New Jersey Library Network Statewide Services Handbook, 1988 edition, published by the Library Development Bureau of NJSL, provides a description of the services provided by the SCLs. It also includes a "Reference Decision Tree" diagram which maps the path of a reference question from a patron. The NJSL encourages librarians in the state to choose the "optimum direct route" in handling questions from their patrons. The first step is to check local resources. The next step is to turn to the Network.

The Network provides resources on two levels: statewide and at the regional level through six Regional Library Cooperatives (RLCs). There are both state contract libraries (SCLs) and Regional Contract Libraries (RCLs). As is discussed in Chapter 2, the term "supplemental" is used in this report to describe those statewide services provided by the SCLs and supported by the NJSL. When service is provided by the RCLs, it is referred to as "regional" rather than "supplemental" service.

In 1987, there were five SCLs: Newark Public Library, the New Jersey State Library, Rutgers University, Princeton University, and the University of Medicine and Dentistry of New Jersey (UMDJ). All but UMDJ provide supplemental reference assistance. UMDJ provides on-demand supplemental reference via online searching of health-related databases, as well as supplemental ILL.

In addition to the SCLs, New Jersey libraries participate in six Regional Library Cooperatives (RLCs). In 1987, the six RLCs executed 38 contracts with 41

RCLs libraries in their respective regions for a variety of services.¹ The RLCs provide telephone reference service; reference assistance in special subject areas; and on-site (walk-in) reference service directly to the patron. Inter-library loan and citation and location services are also provided.

For the purpose of this study, all telephone requests for reference assistance received by NPL Central and the BL&R from eligible New Jersey libraries are considered supplemental reference. All questions received by NPL Central and the BL&R from walk-in clientele are considered part of "regular" reference service.² In 1987, supplemental reference service was available to all New Jersey libraries. In 1988, the policy on supplemental service changed. Supplemental service is now available only to libraries belonging to the Network.

This shift in policy has been difficult for staff at the two SCLs to implement on three counts. To begin with, SCL staff do not know which libraries are now bona fide Network members or are in the process of becoming members of the Network. According to the latest annual report on the status of the Network, there were 1,445 Network member libraries at the end of 1987.³ Secondly, even if librarians at each SCL had an updated list of Network members, it would be time consuming to consult the list to determine whether a calling library is entitled to supplemental reference service.

And finally, staff at the two SCLs understandably do not want to turn away non-Network member libraries. Doing so conflicts with the service ethic at both libraries. Policy and administrative issues relating to tracking and counting regular versus supplemental questions are discussed in Chapter 3. A number of recommendations in Chapter 9 also address these issues.

For the purpose of this study, supplemental ILL is that portion of total ILL requests which NPL Central and the BL&R receive from other New Jersey libraries.⁴ Requests for ILL from libraries out of state are excluded from supplemental ILL since NJSL does not compensate for these transactions. There are two levels of subsidy for supplemental ILL: at the state contract level and at the local library level. In addition, individual New Jersey libraries received an additional "net-plus" subsidy if they provide 10% more ILLs in-state than they borrow in-state.

¹ Data on RLC contracts with RCLs was supplied by Marilyn Veldof to B. Robinson, by telephone, November 9, 1988.

² This definition of regular reference was formulated by the Working Group in December 1987 at the initial meeting of the Group held at the Nassau Inn in Princeton, New Jersey.

³ Barbara Weaver, Library Network Report for 1987 to the New Jersey Legislature and the State Board of Education, Prepared by the Division of the State Library, Trenton, New Jersey, October 1988, pp.5-8.

⁴ The Working Group agreed at the December 1987 meeting in Princeton, New Jersey that ILL requests which NPL Central and the BL&R send to other libraries on behalf of their own clientele are considered part of "regular" ILL.

1.4 Types of Supplemental Reference

State Contract Libraries provide two types of supplemental reference on a statewide basis: subject reference service and general reference information. Each is described below.

Subject Reference Service

In 1988, subject reference service is provided by the SCL directly to any Member (i.e., library) of the Network who calls for service after determining that local resources are insufficient. SCLs provide subject reference service only in those subject areas which have been specified in their annual contract with NJSL. The Statewide Services Handbook, 1987 edition, lists the statewide services, provided by NPL and the Bureau, as follows:

Responsibilities under the 1987 State Contract

NPL Central

- O Art;
- O Business;
- O Music;
- O New Jersey
- O U.S. Documents; and
- O U.S. Patents.

The BL&R

- O Foundations;
- O Law;
- O New Jersey; and
- O U.S. Documents.

General Reference Information

General reference information is provided statewide by an SCL only to designated Regional Contract Libraries (RCLs). NJSL reimburses the SCLs for providing support to the RCLs. The SCL is not reimbursed for providing general reference information to libraries or individuals who do not come through the RCL. Members (i.e., libraries) of the Network wishing to make use of the SCLs' general reference information must refer the question to staff at their RCL. The RCL then taps the SCL's resources on behalf of the regional member library.

In the case of NPL, NJSL contracts for the delivery of general reference information by using the staff in the Humanities Collection of NPL Central. In the course of the study, it became apparent that the concept of providing "general reference" assistance needs clarification. A question arose about the scope of the support being provided: Are the Humanities reference staff limited to using the Humanities Collection when handling general reference, or are they simply gatekeepers who then route the question to the appropriate staff member at NPL

Central?⁵ Humanities staff also report that they frequently refer questions from the RCLs to the Sciences Division. Clarification from NJSL on the nature of Newark's back-up responsibilities is needed.

In a memorandum sent to the study consultant, Sallie B. Hannigan, Supervising Librarian, the Humanities Division, says:

My opinion is that other libraries call us when their own sources seem not to be sufficient, and the questions are related to subjects in the humanities rather than 'general reference.' In other words, as revealed in practice, 'general reference' means any question which a regional contract library is unable to find, whether it be an address, a citation, an identification of an individual, a translation of a phrase or word into a foreign language, a location of a quotation, or the location of an historical map.

Both heads of the Sciences and Humanities Divisions report that librarians from the RCLs call the Sciences Division directly rather than delaying the request by routing it through the Humanities Division. The confusion concerning Network protocols is compounded by the fact that both the Humanities and Sciences Divisions are designated to provide regional reference service under the terms of NPL's contract with RLC Region 3. It is very difficult for both the contracting library and the inquiring library to keep the state and regional roles straight. Not surprisingly, there are resulting data collection problems, which are discussed in Chapter 4.

The Sciences Division, newly created in October 1987, combines three divisions -- Education, Science & Technology, and Social Science. Note that two collections housed in the Sciences Division -- U.S. Patents and Trademarks and U.S. Government Documents -- are designated as part of NPL's subject reference service responsibilities in its annual contract with NJSL. Larry Schwartz, Supervising Librarian, Sciences Division, comments that at NPL Central, "it should be apparent and noted that no other division has so many diverse functions and NONE provides two select state-wide services other than this Division."⁶ According to Schwartz, problems with educating librarians to use the Network resources stem, in part, from the fact that "up to 20% of the professional staffs of NJ libraries may leave their jobs in any one year."⁷

⁵In a memorandum sent to the study consultant, Sallie B. Hannigan, Supervising Librarian, the Humanities Division, poses the following questions: "Does it mean that Humanities serves as a clearinghouse for questions? Does it refer to general bibliographies, encyclopedias, indexes, etc." Correspondence between Sallie B. Hannigan and B. Robinson regarding characterizing levels of reference resources, March 18, 1988.

⁶Correspondence between Larry Schwartz, Sciences Division, and B. Robinson, February 26, 1988.

⁷Correspondence between Larry Schwartz and B. Robinson regarding characterizing levels of reference resources, March 17, 1988.

The BL&R also provides general reference information under contract to the NJSL via the staff of the Governmental Reference Unit. As in the case of NPL Central, they access their own collection first. They will refer the question when they cannot answer it using the Bureau's own resources.

It is recommended that NPL and NJSL review the parameters of the service currently being provided by NPL Central under the terms of NPL's contract to provide general reference information statewide. It may be more productive to expand the scope of the contract with NJSL to include the Sciences Division along with the Humanities Division as an option for general reference information than trying to separate or inhibit the flow of supplemental reference directly to and between the Sciences and Humanities Divisions. Recommendations relating to organizational and administrative responsibilities appear in Chapter 9.

1.5 Summary of Network Protocols for Supplemental Reference

To summarize, NJSL, together with its advisory and oversight groups, developed a number of protocols for New Jersey libraries when using supplemental reference in 1987-8. The protocols are as follows:

- 0 After determining that local resources are not adequate for handling a client's question, Network Member libraries have direct access to an SCL for designated subject reference and may call staff at an SCL for assistance;

- 0 Network Member libraries also have access to SCLs for general reference information by routing requests through their RCL which, in turn, contacts the SCL by telephone; and

- 0 End users (i.e., clients) have access only via their local library to either subject reference or general reference information provided by an SCL. An SCL does not receive state compensation for providing service to patrons who come direct and do not come through the Network.

Network protocols, however, may be viewed by knowledgeable patrons and librarians as impediments to the "optimum" direct route for gaining information. They may ignore the protocols and telephone or visit a given library directly. This behavior results in difficulties for the SCLs in record keeping.

It is difficult for service-minded reference staff at NPL to turn away non-local clientele who are seeking information directly, bypassing the Network. The resulting conflict reflects the tension between the service ethic at NPL and the terms of the state contract. The reference staff at NPL see themselves as being in the business of providing information and not in assuring that they spend their time only on questions from patrons for which they will be compensated.

This record keeping problem is compounded for the BL&R because it is required by State statute to allow direct access to all New Jersey libraries and citizens. It is difficult for the BL&R to keep track of how many questions were handled because of its SCL role in the Network and how many questions it re-

ceived because of its statutory obligations. The confusion arising from this dual mission is discussed in Chapter 2.

Issues relating to data collection problems facing NPL and the BL&R are discussed in Chapter 4. The problems of following network protocol are not part of the scope of this study, but they have been flagged here and require attention on the part of NJSL.

1.6 The Conduct of the Study

Members of the Working Group met with the consultant six times during the course of the study. In addition to working sessions, individuals in the Working Group communicated with the consultant by telephone as well as in writing and participated in data gathering for the profile of staff time, for characterizing levels of reference resources, and for the cost finding model.⁶ They also commented on a series of working papers developed by the study consultant. Nearly three months were spent on the definition phase of the study which involved refining definitions. These definitions are used throughout the study.

The investment in this definition phase paid off because all members of the Working Group were able to use the same vocabulary and to operate within the same conceptual framework. Developing definitions gave rise to a shared understanding of the concrete elements involved in delivering "supplemental reference" and "supplemental interlibrary loan" service. Consequently, the definition process resulted in a shared conceptual framework which, in turn, provided the foundation for understanding and accepting the resulting cost finding model.

Our costing approach involved capturing all relevant costs which could be associated with supplemental reference and interlibrary loan. In the case of floor space, we imputed a rent to each of the cost centers based on how much of the rental space they each occupied in the building. Staff at each library assisted us by marking up floor plans in order to show the physical space requirements each cost center. In the case of NPL, floor plans were outdated. Staff at NPL invested the time to create an updated set of plans.

In creating cost centers and an overall operating budget for each of the two libraries, the participation of the financial staff at NPL and the NJSL in the study was essential. They helped us to allocate the cost categories appearing in their annual line item budgets. Staff also tracked down the cost of services, such as utilities, maintenance, security, and communications which are paid for, depending on the library, by their parent organization. In NPL's case, the city of Newark pays. In BL&R's case, the New Jersey state government pays. Although some of these costs were not paid for directly by one or both of the libraries, they nonetheless are part of the cost of providing service and therefore are imputed, as appropriate, and included in the total cost.

⁶ Copies of the following forms, developed for use during the study, appear in the appendix to this report: A Profile of Time Spent on State Contract Duties in a Typical Week in 1987, and Characterizing Levels of Reference Resources.

Professor Sherman Robinson, an economist, led the Working Group and functional library staff through the complicated task of creating a cost finding model and gathering the data needed to run the model. He automated the data manipulation by creating a series of linked spreadsheets. By linking spreadsheets, any changes made in dollar amounts on one spreadsheet cascade through all the spreadsheets. As a result, the process of updating and correcting the data used to create the model was extremely fast and efficient.

1.7 Benefits of the Study

The study findings are intended to provide the NJSL with a clearer understanding of how much it costs NPL Central and the BL&R to provide supplemental reference and ILL/photocopying in return for performing at SCLs. The findings provide cost data necessary for future discussions concerning how much supplemental reference and interlibrary loan service should be provided to the Network by NPL and the NJSL, given the current cost of providing these services.

Through the study process, staff at NPL and the BL&R have acquired internal management information on the cost to each of providing "regular" reference and "regular" interlibrary loan service to their own users. Furthermore, staff at the two libraries have been introduced to program budgeting techniques. These techniques, if applied in the future, will enable staff to track costs directly associated with the delivery of these two services and to update the cost information contained in this report.

2. REFERENCE AND INTERLIBRARY LOAN SERVICES

2.1 Introduction

During the first three months of this study, the Working Group and the consultant defined key terms and concepts. In doing so, we developed a common working vocabulary. Definitions developed by the Policies, Procedures, and Protocols Committee of the New Jersey Library Network, which appeared in a document, dated October 1987, served as a starting point.⁹

The differences between "regular" and "supplemental" reference and interlibrary loan are discussed below, and the following terms are defined: the reference function; the question handling function; other reference functions; interlibrary loan (ILL); interlibrary photocopying; citation and location service; and subject interlibrary loan.

Interlibrary loan is a relatively linear process. It has been the focus of many work flow and time and motion studies. Because it is so well charted, the Working Group was able to devote most of its time in the definition phase of the study to defining reference. Consequently, ILL is discussed only briefly in this chapter. Reference, in contrast to ILL, is highly complex and far less well defined. It is usually a much less linear process than interlibrary loan and is more art than science. It is examined at length here.

The term "regular" pertains to service provided by a given library to its "regular" clientele. The term "supplemental" is used to characterize service subsidized by the NJSL and delivered by an SCL. The clientele receiving supplemental service is not the back-up library's "regular" clientele. In the case of public libraries in New Jersey, the term "regular clientele" is usually equated with the term "local" clientele. By "local," New Jersey librarians usually mean those citizens living in a geographic service area, such as a city or a county.

Both NPL Central and the BL&R, however, have difficulty identifying their regular clientele. Asking walk-in and telephone reference users to identify themselves is time consuming and intrusive. Consequently, at present, there are no hard data on the number of "regular" versus "supplemental" clientele using NPL Central. There are, however, estimates of the number of supplemental reference question transactions handled by NPL, based on an annual sample commissioned by NJSL.¹⁰

⁹Minutes of the Committee on Policies, Procedures and Protocols meeting, Holiday Inn, Jamesburg, New Jersey, September 18, 1987.

¹⁰Research Library Statistics reports on the data collected using an annual sample of ILL, photocopy, and reference transactions handled by each of the SCLs. From 1983-1985, Steve Halperin, Lippincott Library, University of Pennsylvania, conducted the survey, under contract to NJSL. Tim LaBorie, Head of Reference at Drexel University Library handled the report generation for the years 1986 and 1987. Chapter 4 discusses data problems in more detail.

For the BL&R, a further complication is that the NJSL, according to New Jersey statute, is required to provide "supplemental library service for New Jersey libraries [whether they are members of the Network or not] and citizens and direct library service for the handicapped."¹¹ Therefore, the regular, or local clientele of the BL&R is every citizen of the State of New Jersey. In addition, however, NJSL has a more specific "regular" clientele which is "the legislative, executive and judicial branches of State Government."¹² In 1988, however, according to Network protocols, supplemental reference is available only to libraries which are members of the Network. This change in protocols conflicts with the BL&R's statutory obligations and needs to be clarified in the future.

At present, librarians in New Jersey do not distinguish between "regular" or "supplemental" ILL. Using the term "supplemental" consistently throughout the report, however, helps the reader to differentiate between the subsidized service, provided by NPL Central and the BL&R, and the "regular" service, which each library provides but receives no direct state subsidy for doing so.

For the purposes of discussion in this paper, "regular" ILL encompasses two concepts. It refers to the process of borrowing on behalf of local clientele who have placed requests which cannot be filled using local resources. It is also the quid pro quo for reciprocal borrowing, which occurs when libraries borrow and lend to one another in roughly the same proportion.

The term "supplemental" ILL also captures two concepts. The first, is the provision of ILL to New Jersey residents who are not local. If a library is designated to do so, under contract with the state, it is providing supplemental ILL. In addition, the term supplemental ILL is also used throughout the state to capture the notion of net lenders; that is, the provision of ILL by libraries who will not borrow as much as they loan.¹³ In both cases, the NJSL wishes to encourage the sharing of resources in the State and therefore provides subsidies for both types of supplemental ILL. This study focuses exclusively on supplemental ILL provided by SCLs.

When interviewed during the course of this study, reference staff in each of the two libraries said that the same process and the same staff were used for handling both supplemental and regular questions. Similarly, staff at each of the two libraries reported that the same ILL/photocopying process and staff were involved, whether the ILL/photocopying request was regular or supplemental.

Indeed, the staff did not perceive that supplemental questions differed from regular questions, or that supplemental ILL/photocopying differed from regular ILL/photocopying, either in terms of complexity, difficulty, or time and re-

¹¹Ibid.

¹²New Jersey Statutes Annotated, Section II:1-1 to II:28-3, Article 18A: 73-35 on "duties and function of the division."

¹³NJSL provides a "net-plus" subsidy to libraries in New Jersey which provide 10% or more ILLs in-state than they borrow in-state.

sources required. The study findings suggest, however, that staff perceptions are incorrect with regard to question handling. Data collected for the study indicate that staff spent roughly twice as much time on handling a supplemental question as on handling a regular question.¹⁴

We do not know the characteristics of supplemental questions which make them more time consuming to handle. Furthermore, we have no way of knowing whether supplemental questions received by the SCLs are becoming more difficult to handle as RCLs expand their role in supplemental question handling in their respective regions, a concern expressed by a few staff at the two SCLs.

In a study conducted by B. Robinson for the State of California, there was an hypothesis that libraries at the "second level" of the California reference network skimmed off the easier referred questions. The assumption was that the libraries of last resort at the "third-level" handled much more complex and difficult questions.¹⁵ If this hypothesis is correct and applies to SCLs in New Jersey, it could well be that requests received by the SCLs will become more complex and time consuming.

Usually, the more complex the question, the more difficult and time consuming it is to handle. Consequently, the number of requests handled by an SCL may decline over time as more time is spent per question. The RCLs may take on more questions, overall, and more of the easier questions, relieving the SCLs of some question handling. The absolute numbers will not capture the level of effort required by each SCL to handle questions received. To resolve this issue, it is important to learn more about the characteristics of the questions handled and the amount of time required to handle each supplemental question, on average.

At present, the term "supplemental" is also used in New Jersey to characterize services provided regionally as well as statewide. When NJSL contracts with the six Regional Library Cooperatives (RLCs) to provide "regional" reference through a Regional Contract Library (RCL) -- either on-site for walk-in service, or by telephone -- this service is also referred to as "supplemental reference." In this report, the term "supplemental" is reserved for describing those statewide services provided by the SCLs and supported by the NJSL. When service is provided by the RCLs, we recommend that it be called "regional" service rather than "supplemental" service.

¹⁴See Chapter 8, Table 8-1.

¹⁵A Study of Reference Referral and Super Reference in California, Volume I: Main Report, by Barbara M. Robinson under contract to the California State Library: Sacramento, CA, June 1986.

2.2 Redefining Reference

At present, the term "reference" is used by librarians in the field to characterize staff, collections, and questions, as well as the process of providing the service. We talk about a "reference librarian" providing "reference service," by using titles in the "reference collection" in order to handle a "reference question." For this study, we broadly define reference service as the mediated response by reference staff to a client question, which may be posed by telephone or in-person. The reference staff mediate access to information on behalf of the client, in an effort to answer the client's question.

This broad definition, however, is inadequate for the purpose of costing the reference function. In order to determine how much it costs NPL Central and the BL&R to handle a supplemental question, a good deal of effort was spent breaking the reference function down into two parts: "question handling" and "other reference" functions. "Other reference" includes: developing specialized resources, education & training, and quality control. Definitions of reference functions, as well as of reference resources and levels of service, were developed as part of the Robinson study for the State of California.¹⁶

Question Handling

The term "question handling" is used in this report to describe the principal function of reference service. It involves a process in which a librarian handles a question on behalf of a patron or client. We use the term "question handling," rather than "question answering," for two reasons: not every question results in an answer; and whether the question is answered or not, resources are expended in deciding how to handle the question. Whether it is handled well or badly is not part of the scope of this study, although the issue of quality control will be discussed briefly below. A model of question handling is described in Chapter 3.

Developing Specialized Resources

Developing specialized resources involves two different types of activities: (1) The creation of finding tools, such as information, subject, or vertical files, specially compiled lists of facts and data, guides to subject collections, bibliographies, and union lists of periodicals; and (2) Collection development, which includes the selection and purchase of materials. Collection development pertains primarily to the development of the reference collection and secondarily to the development of subject collections in the general collection.

¹⁶See Robinson, *Ibid*. Over one hundred California librarians, from all types of libraries, were involved in the development of these definitions. They were further refined in consultation with members of the Working Group during the study process. The concepts were developed with public library resources in mind.

Education and Training

Education and training refers exclusively to the training of reference staff, or other library staff who are responsible for delivery reference service. It does not include bibliographic instruction and any other kinds of training for the public. The function includes the following activities: (1) Formal and informal training (such as courses at library schools, colleges, and universities) and continuing education workshops, seminars, and lectures; and (2) Development of in-house tools which can be used to educate staff to improve their performance (e.g., preparation of reference manuals and self-study workbooks).

Quality Control

Quality control involves applying either implicit or explicit performance standards to reference service output. Factors such as turn-around time and accuracy are easier to measure than completeness and librarian and/or client satisfaction. Implicit quality control is informal. It is the expectation that staff will provide "good" quality service. There is no systematic collection of data on staff performance at the two libraries. Explicit quality control is formal. It involves defining and systematically collecting data on performance in order to determine whether "good" quality service is being delivered consistently over a period of time.

2.3 Interlibrary Loan (ILL)/Photocopying

Our definition of ILL, and therefore the cost of ILL, includes interlibrary photocopying and excludes extended citation verification (requiring five minutes or more); location service when it requires a reference librarian; and subject interlibrary loan. Each of these activities is described below.

Interlibrary Loan

ILL is a form of resource sharing by which one library's collection is used in response to a request for a specific item on behalf of a client from another library. Loaned materials may include a hard copy item from the collection, a surrogate such as a photocopy, or a microform (see the definition of Interlibrary photocopying below). Loaned items must be returned unless a consumable surrogate such as a photocopy is provided.

ILL transactions are now highly automated. Thousands of libraries across the United States use the OCLC ILL subsystem to place ILL requests. Those libraries in New Jersey which do not have these systems in-house can refer their request to the state-funded Access Center, housed in NJSL, which will then input the ILL request they receive into the OCLC ILL subsystem on their behalf. The Access Center, in this role, acts as an expeditor.

A recent study of ILL, conducted by King Research, should be very useful to those seeking comparative data on costs of ILL.¹⁷ All 50 state libraries were surveyed regarding their compensation formula as were over 400 Pennsylvania libraries. Answers received from nearly 300 libraries, reported on a number of ILL parameters, including how much time staff spend on ILL.

Interlibrary Photocopying

Interlibrary photocopying is another form of resource sharing. Items in one library's collection are copied in response to a request for a specific item from another library. ILL does not always involve loaning the original hard copy. It often requires making a copy of the original -- whether a photocopy or a microform. This is often the case with serials, which are photocopied in order to fill a request. Monographs, unless they are fragile or rare, are usually loaned. In an article in Library Journal, H. White suggested that the term ILL is outmoded and should be replaced with the term "temporary acquisition."¹⁸ The labor and materials required to copy materials are considered part of the cost of the ILL function.

Photocopying is only one of a variety of copying approaches available. The term photocopying is therefore used loosely to include photocopying as well as fiche-to-fiche duplication, photographic reproduction, fiche-to-hard copy, telefacsimile, and CD ROM printout. ILL and interlibrary photocopying are referred to as "ILL/photocopying" throughout the study and their costs are combined. For the purposes of this study, ILL/photocopying does not include involvement by reference staff. If the services of a reference librarian are required, the request becomes a reference request rather than an ILL request and is costed as part of the reference function.

Extended Citation Verification and Location Service

Citation verification is the process of verifying, completing, and/or correcting bibliographic information for a given title. Location service is the process of identifying other libraries which own a specific title, when the library receiving the request either does not own it, cannot find, or cannot spare it at the time of the inquiry. Citation verification and this kind of location assistance are viewed by most libraries as integral to the delivery of ILL. These types of requests are usually easy to handle and inexpensive to provide because of the ready availability of bibliographic and location information on the OCLC database to ILL staff.

Location service may also include the process of identifying agencies, other than libraries, through which the work may be loaned, purchased, or consulted in-house. This second type of location assistance, which requires the help of a reference librarian to identify and/or look up other agencies through whom

¹⁷King Research, Inc., Interlibrary Loan Compensation Plan for the Commonwealth of Pennsylvania: Final Report, April 5, 1986 (Rockville, MD).

¹⁸Herbert S. White, "Interlibrary Loan: An Old Idea in a New Setting," Library Journal, July 1987, 53-4.

the work may be obtained or consulted, is considered a reference question and is not part of the location service.

NJSL provides funding to the Access Center, located in the same building with the NJSL, to handle citation and location requests from libraries in New Jersey. The Access Center also enters ILL requests into the OCLC system for those libraries which do not yet have these resources in-house. Since citation and location requests are to be referred to the Access Center by any library in the state, NJSL requested that the study exclude citation and location service from the definition of interlibrary loan service and costs and it is, therefore, not part of the scope of the study.

Although the SCLs are not expected to provide citation and location service and are not compensated for doing so, brief citation and location assistance is viewed by most libraries as an integral part of providing ILL services. "Brief" is loosely defined by ILL staff as taking less than five minutes and "extended" as taking more than five minutes. Based on conversations with staff at the two libraries, it appears that they do provide brief citation and location assistance in the course of handling supplemental ILL requests, even though the terms of their contract do not require it, and they may also provide some extended citation and location service.

Subject Interlibrary Loan

Subject interlibrary loan involves an ILL request for materials on a particular subject (e.g., books on dogs), rather than for a particular title. If a reference librarian becomes involved in handling this request, it is no longer an ILL request, but rather a reference request. As in the case of citation and location assistance, whenever a reference librarian is involved, the activity is viewed as a reference activity. When staff were surveyed during the study to determine how they spent their time, subject interlibrary loans were excluded from ILL on the survey form and listed as one of the reference activities.

3. A MODEL OF QUESTION HANDLING

3.1 Introduction

Every reference librarian at NPL Central and the BL&R would agree that reference questions vary tremendously in terms of the level of resources and/or effort required. The following question handling model provides a conceptual framework for discussing the components of question handling. In effect, the model provides a snapshot of the thought process of a reference librarian as he or she makes a series of decisions regarding the handling of a question. It makes concrete a highly abstract process. It enables staff at NPL Central and the BL&R to discuss the question handling process using a shared vocabulary. The development of this model helped to identify the variables which needed to be costed as part of the cost finding model.

Although the question handling model was developed to help identify and define inputs and outputs for costing purposes, the model has proven to be a useful training and diagnostic tool in its own right.¹⁹ In the future, by systematically applying the question handling model to the question handling process, information can be generated for planning purposes, such as allocating both staff time and acquisitions funds.

While the scope of this study focuses on costing regular and supplemental reference, which we call supplemental question handling service, it would be useful if NPL and the BL&R were to collect data in the future which goes beyond the study and captures the cost of delivering question handling at each of the four levels of question handling -- ready reference, reference, research, and client referral. Each is defined below.

During the course of the study, staff at NPL and the BL&R also participated in an informal exercise in which they were asked to define the level of their respective collections in the subjects designated under the NJSL contract. Using a work sheet developed during the study, staff at both libraries compared the reference resources in each designated subject area to resources in the same subject which are held by other libraries in New Jersey and in neighboring states. A copy of the form, Characterizing Levels of Reference Resources, appears in an appendix to this volume.²⁰

In order to make this comparison, staff identified reference resources (i.e., a particular collection and staff) which they viewed as representing the highest standard in that subject in the state or the region. They then compared their own reference resources to the standard and to other reference resources

¹⁹ In addition to testing the question handling model on staff at NPL and the BL&R, staff at the National Gerontology Research Center of the American Association of Retired Persons, a special library in Washington, D.C. have used it as a diagnostic and training tool. It has also been used by B. Robinson in a workshop setting with librarians from all types of libraries.

²⁰ The instrument is discussed in detail in Chapter 4, Section 4.3.

which are at the same level as their collection or at a lower level. Terminology for characterizing the composition and level of reference resources, which respondents used to describe the levels of reference resources, is defined below. These terms are used in the question handling model.

3.2 Reference Resources

Reference resources are defined in this study as the inseparable combination of reference staff and information resources which are used for reference service. The indispensable element in the mix is the librarian. If a librarian is not involved, then the client is not receiving reference service. Rather, he is handling his own question and is drawing upon the information resources in the library and not on the staff resources. This concept of "reference resources" differs from other measures of collection strength, such as the Research Libraries Group's Conspectus or the Guidelines for Collection Development, published by the Resources and Technical Services Division of the American Library Association, which focus on objective assessment of the breadth and depth of information resources.²¹ They do not assess staff resources. Indeed, the RTSD Guidelines advise that:

Definitions of collecting levels are not to be applied in a relative or ad hoc manner (that is relative to a given library or group of libraries), but in a very objective manner.²²

In our study, we view the collection as one of several components of the stock of information resources and as only part of the reference resources in any given library. We see staff resources as being inextricably intertwined with information resources, and therefore as an integral part of reference resources.

Reference staff

Our definition of reference staff includes subject specialists on the reference staff in a given library, as well as general reference staff. Depending on the size, budget, and/or mission of the library, the reference staff may be either partially or fully dedicated to the question handling function. The remainder of their time may be divided between other reference functions and/or non-reference-related functions. Attributes of the reference staff include: whether they have an MLS; the extent to which they have received post-master's training through workshops, in-service training, and formal academic course work; the number of years of on-the-job experience; and subject expertise gained through course work or on-the-job experience.

²¹The Conspectus, the Research Libraries Group, a special data base containing collection evaluation data, available on the Research Libraries Information Network (RLIN), Menlo Park, California; and David L. Perkins, ed., Guidelines for Collection Development, Collection Development Committee, Resources and Technical Services Division, Chicago: American Library Association, 1984.

²²Ibid., p. 3.

Information Resources

Our definition of information resources includes the reference collection; the periodicals collection; the government documents collection; the general collection; specially developed resources such as vertical files, union lists, bibliographies, and card files; as well as access to online databases and outside resources and expertise which are tapped by telephone, electronic mail, or conventional mail. To define further some of these resources:

- (1) The reference collection includes those materials housed in a designated reference area which only circulate under special conditions;
- (2) The ready reference collection includes those materials, such as almanacs, housed adjacent to the reference desk for quick consultation, as well as home-grown resources such as card files of frequently asked questions and their answers;
- (3) The general collection includes the circulating collection of books and periodicals which cover both fiction and non-fiction; and
- (4) Outside expertise refers to individuals with a great deal of knowledge in a particular field or subject area, who are based outside the library and often provide a short cut for information gathering. These experts may know the answer to a question or know where to obtain the information. They may be located in the library's parent organization or in another public or private institution.

In determining the level of resources available in a given library, the competence of the staff may be viewed as offsetting deficiencies in the collection. The net effect is that highly competent reference staff can make a state-of-the-practice collection perform as if it were at a more advanced level, because they know how to mine it and to supplement it with outside resources. For example, large urban libraries like NPL have experienced severe acquisitions constraints in recent years. They have managed to continue to deliver service which they perceive to be at the advanced-state-of-the-practice thanks to the experience of their long time staff. There is a point, however, beyond which the competence of staff cannot compensate for the deficiencies of the internal information resources. Determining that point is not part of the scope of this study, but would be a fruitful area for future research.

There appears to be a natural balance between staff and information resources. A given library may have exceptionally strong staff in charge of declining internal information resources, which were once also very strong. This library may still be considered at the high end of the reference resource continuum. Another, much less likely scenario, is that of the exceptionally strong collection which is served by a weak staff. In this case, even the best information resources are going to be ineffective if the staff do not know how to use them. And since question handling is a mediated service, if the staff cannot use the information resources effectively, the client will be poorly served.

3.3 Levels of Reference Resources

The characteristics of reference resources vary depending upon whether the level of resources are garden variety, state-of-the-practice, advanced-state-of-the-practice, or super reference. Describing levels of reference resources involves being able to make comparisons. It requires positioning a given library's reference resource (i.e., the combination of staff and information resources) on a continuum of libraries of the same type, or with the same subject emphasis, to gain a sense of where a given library fits.

We define a continuum of resource levels, ranging from garden variety and state-of-the-practice to advanced state-of-the-practice and super reference.²³ The concept of levels of reference resources can be applied broadly to characterize an entire collection, or more narrowly to characterize a particular subject or special collection in a given library.

The activity of characterizing reference resources is only meaningful if it involves making comparisons with other libraries of the same size, type, or with the same collection focus. The following four generic levels of reference resources are intended to be used comparatively. There is no doubt that applying them involves making subjective judgments. The benefit, however, is that impressions regarding resource strengths and weaknesses can be discussed and refined. In the context of this study, the focus is on the resources of a large urban public library (NPL) and on the BL&R, which has attributes of both a special and a public library.

Garden Variety

Staff have some reference training to handle questions. The time of the staff is not dedicated solely to question handling or necessarily to other reference functions. Information resources are those commonly found in a small reference collection (e.g., an almanac, encyclopedia, unabridged dictionary). No database searching and little to no long distance telephone inquiry are used.

State-of-the-Practice

Staff usually have a Masters in Library Science (MLS), are trained to handle reference, and have some reference experience. Their time is not dedicated solely to question handling, or necessarily to other reference functions. Staff work with a moderate sized reference collection, periodicals collection, and

²³In the Robinson study of reference and referral, cited earlier, two reference resources were categorized as being at the super reference level. They were the Bay Area Reference Center (BARC), which was located at the San Francisco Public Library, and the Southern California Answering Network (SCAN), which was based at the Los Angeles Public Library -- before the fire of 1983. The levels of reference resources were developed for characterizing public library reference resources. The definitions may not be generalizable to academic, special, and school libraries without adaptation.

general collection. They may have access to online searching for commonly-held databases. They make moderate use of telephone inquiry for tapping outside expertise and resources.

Advanced-State-of-the-Practice

Staff are very experienced professionals with MLS degrees and may have expertise in a subject area as well, though not necessarily a second masters degree. Their time is dedicated solely to reference functions and predominately to question handling and collection development. Staff work with large or very specialized collections which have depth as well as breadth and are current. They have funds available to access specialized as well as commonly-used databases. They make moderate to extensive use of telephone inquiry and advanced document delivery techniques, such as telefacsimile, dial order, and full text retrieval online.

Super Reference

Staff are very experienced professionals with MLS degrees and usually have subject expertise as well, though not necessarily a second masters degree. Their time is heavily dedicated to question handling, although they may perform other reference functions to a limited extent. Staff work with very large or highly specialized collections. They have funds available to access specialized as well as commonly-used databases and make extensive use of the telephone for tapping outside expertise and resources.

3.4 Levels of Service

There are four levels of question handling service. They are "ready reference," "reference," "research," and "client referral." While these terms are familiar to reference librarians, they tend to be used rather casually and interchangeably. For example, a reference librarian might not differentiate between reference and research. In this paper, each of these four terms is used to describe discrete service options. Each level is mutually exclusive, although ready reference, reference, and research shade into one another along a continuum. Each is described in terms of time required, turnaround time, the mix of reference resources, and anticipated outputs.

Ready Reference

Ready reference involves handling a question in less than five minutes from start to finish. In most cases, the question is handled while the client is waiting. Reference staff make use of a small, carefully chosen collection of garden variety information resources, which are commonly called "the ready reference collection." The result is always an answer unless the service level required was misjudged.

Reference

Reference usually requires from five to thirty minutes. Reference may take longer if there are no limits imposed on the time spent per question. Unlike

ready reference, reference service may not be provided within one day. Usually, however, reference is provided within one to two days. The result is usually an answer (which may include a negative answer) or a client referral.

Research

Research is very labor intensive. It can easily consume a day to a week of staff time if no ceilings on the amount of time allocated to each research question have been established. The term "research" here refers to reference staff conducting, secondary, not primary research. By secondary research, we mean an extensive and systematic effort to uncover knowledge derived from primary sources. The result is an explanation of research findings rather than a clear-cut answer. This level of effort is sometimes called extended reference.

Client Referral

There are two kinds of referral: question referral and client referral. In this report, "reference referral" is called "question referral" in order to distinguish it from "client referral." Each is discussed below.

(1) Question Referral: A process which usually involves professional reference staff at Library A referring a question to professional reference staff at Library B in order to bring additional reference resources to bear in handling the question. Library A retains control of the client and does not pass the client on to Library B. Question referral takes place between libraries or between a library and a resource other than a library (e.g., an individual expert, a social service agency). Question referral is simply another option for bringing reference resources to bear in question handling.

(2) Client referral: A process which usually involves professional reference staff member at Library A referring a client to an alternative source of information, whether library B, another institution, or an outside expert. Once the librarian in Library A makes a client referral, both the client and the question are no longer the responsibility of the staff member at Library A, and therefore the librarian is out of the loop.

Client referral may involve providing a lead or making a contact. A reference librarian may suggest to the client that he/she handle the question by drawing on particular reference resources which are outside of the library, either by writing, visiting, or using a Regional Contract Library on a "walk-in" basis. A more labor intensive approach involves the librarian who received the question calling or writing to other reference resources to introduce the client.

In summary, in referring either the question or the client, the librarian decides to enlist the help of another individual. The librarian can choose to ask for assistance from an individual who is internal to the library (usually another reference librarian); internal to the organization (e.g., an expert in a subject area); or external to the organization (e.g., a librarian, a generalist, or a specialist in another organization).

An internal referral involves passing the client or the question onto another reference librarian on the staff who has more experience or more expertise. If

an external referral occurs, either the question or the client is passed to an outside resource person -- whether a librarian, a generalist, or a specialist. The choice depends upon the judgment of the librarian handling the question.

3.5 Complexity and Difficulty

In the course of developing the model, it was important to separate the description of the characteristics of the question and the answer from the level of effort required by the librarian to handle the question. The initial perception by the client and the librarian of both the question and answer is described in terms of perceived complexity. In addition, the model explores how the librarian's perception of the level of difficulty in answering the question is shaped by a number of variables which are both external and internal to the library. The concepts of simple/complex, easy/difficult, and external/internal variables are defined below.

Simple versus Complex

1. A simple question is perceived by either the client or the librarian to be a single-faceted question. It has one part or a single dimension. A simple question often requires only a simple answer. Sometimes, a simple question may require a complex answer. An example of a simple question requiring a simple answer: When was President Lincoln born? An example of a simple question requiring a complex answer: How many fish are there in the sea?
2. A simple answer is perceived either by the client or the librarian to lead to a single-faceted factual answer. An example of a simple answer: President Lincoln was born February 12, 1809.
3. Sometimes a simple question evolves into a complex question. A complex question is perceived by the client or the librarian to be multi-faceted; having many parts, or being multi-dimensional. An example of a complex question: What were the political, economic, and social conditions in Iran which caused the rise of the Khomeini?
4. Sometimes what sounds like a complex question turns out to be a simple question expressed in a complicated, convoluted way by the client.
5. Sometimes a compound question -- a nest of either simple or complex questions -- is mistaken for a single complex question.
6. A complex "answer" is, in fact, a finding. It is multi-faceted and cannot be stated simply because it requires a good deal of explanation. An example of a complex answer relates to the question regarding the number of fish in the sea. The answer is that no one knows how many fish there are in the sea, but researchers using statistical methods for calculating fish populations can provide a range of estimates.
7. Whether a question is perceived by the client to be "simple" or "complex," however, does not predetermine whether the reference librarian opts for a "simple" answer or a "complex" answer/finding. For a variety of reasons, the

reference librarian may decide that the appropriate response to a "complex" question is a "simple" answer, or possibly a client referral to another reference resource.

8. While a simple question may lead to either a simple answer or a complex answer, a complex question is very likely to lead to a complex answer.

Easy versus Difficult

Given that there are "simple" questions and "complex" questions, it is not always possible for either a client or a reference librarian to predict accurately the level of effort required to handle a given question. A simple question is often, but not always, likely to be easy to handle. Similarly, a complex question may be easy to handle in the sense that there is a clear course of action required, but difficult because so much time is required. The level of difficulty can be expressed in terms of a continuum. "Easy" is the beginning of the continuum, which shades from very easy, moderately easy, easy, moderately difficult, difficult, to very difficult.

1. Easy describes the client's perception or the librarian's initial and subsequent assessment of the low-end level of effort required by the librarian to handle the question.
2. Sometimes, however, a question, which a client and/or a librarian anticipates will be easy to handle, turns out to be difficult.
3. Difficult to very difficult describes the client's perception or the librarian's initial and subsequent assessment of the high-end level of effort required to handle a question.
4. Sometimes, a question which a librarian anticipates will be difficult to handle turns out to be easy.
5. Level of difficulty -- whether easy or difficult -- is a function of the effect that either external or internal variables, or a combination of both, have on the librarian's ability to handle a given question.
6. The easier the question is to handle the more quickly it can be handled. The more difficult the question the more time it takes to handle.

External and Internal Variables

From the outset, both internal and external variables enter into the question handling process. External variables characterize the client. Internal variables characterize the reference resources of the library, as well as the characteristics of the particular librarian who is handling the question.

External variables include: status of the client (e.g., preferred or priority service to elected officials, donors, board members, and other influential citizens); the native language of the client and resulting communication barriers if the client and the librarian do not speak the same language; physical handicaps of the client (e.g., deaf or blind); age; educational level; clarity of

thinking and/or expression; time constraints (e.g., deadlines); and urgency. External variables also include the client's conceptual framework; that is, his or her perception of the question and the answer.²⁴ Problems are compounded if the individual asking the question is an intermediary for the individual originating the question. This situation occurs frequently in special and academic libraries where secretaries and research assistants are sent to the library on behalf of the boss.

Internal variables characterize the reference resources at a given library. They include: the level of education, experience and/or expertise of staff; the level of internal information resources available; the format and ease of accessing the material (e.g., microfiche housed in the subbasement is a barrier); the knowledge of the reference librarian handling the question of internal and outside reference resources (i.e., experts as well as information resources); and the overall mission and policy of the library (e.g., a policy that staff will not handle legal, medical, or consumer questions).

3.6 Phases and Steps in the Question Handling Model

Figure 3.1 presents a diagram of the question handling process. This model describes the reference librarian's interaction with the client during the reference interview and the decisions made regarding internal and external information resources used in the course of handling the question. Judgments regarding these factors determine in what way, and with what mix of resources, the librarian chooses to answer the question.

Matching the appropriate level of question handling service to the availability of reference resources is an art, not a science. It is a given that every question handled by a reference librarian involves choices. It is this matching process which makes it so difficult to evaluate the quality of question handling performance. Judgments about what level of service is appropriate, how much time to spend, and what level of reference resources to deploy are, by definition, subjective and hard to define and quantify.

Furthermore, the process is frequently not linear. A librarian may step through the question handling process only to find that judgments made at a previous step have proven incorrect or inappropriate. The librarian may need to return to a previous step, or go all the way back to the beginning of the process, in order to reformulate the strategy for handling the question.

Experienced reference librarians make these judgments so quickly and automatically that they may be only barely aware of their decision making process. The model of question handling attempts to present the series of decisions which librarians make every day as they handle questions and try to match the level of resources to the level of service which they have chosen.

²⁴Brenda Dervin and Doug Zweizig, "Public Library Use, Users, Uses: Advances in Knowledge of the Characteristics and Needs of the Adult Clientele of American Public Libraries," Advances in Librarianship 7: 231-55, 1977.

Figure 3-1: A Model of Question Handling

I. Conducting Reference Interview		II. Formulating Question Handling Strategy			III. Handling Question	IV. Reporting Result	V. Evaluating Service
(1) Client's perception of question and answer:	(2) Librarian's assessment of question and answer:	(3) Evaluate difficulty of handling:	(4) Estimate resources required:	(5) Decide level of service:	(6) Action:	(7) Deliver product:	(8) Assessment of service:
Q: simple/ complex A: simple	Q: simple/ complex A: simple	easy	1. Garden variety 2. State of practice	1. Ready reference 2. Reference	1. Find answer 2. Find answer	1. Report 2. Report	a. Client satis- faction b. Appropriate- ness of chosen strategy
Q: complex/ simple A: complex	Q: complex/ simple A: complex	difficult	3. Advanced state of practice 4. Super reference 5. Resources not available locally	3. Research 4. Research 5. Client referral	3. Conduct research 4. Conduct research 5. Refer client	3. Report 4. Report	c. Service quality

Notes:

The terms "simple" and "complex" describe whether the question and/or the answer are perceived to be single faceted (i.e., simple), or multi-faceted (i.e., complex). The librarian then determines how "easy" or "difficult" it will be to handle the question. In making that decision, the librarian assesses a variety of factors relating to the client, the resources required, the level of service, and the appropriate output.

As shown in Figure 3.1, the question handling process consists of five phases:

- Phase I. Conducting The Reference Interview;
- Phase II. Formulating the Question Handling Strategy;
- Phase III. Handling the Question;
- Phase IV. Reporting the Results; and
- Phase V. Evaluating Service Delivery.

Phases I through IV are the focus of the model and of this study. Phase V is described briefly; it is, however, beyond the scope of the study. The vocabulary describing levels of reference resources and levels of service, introduced above, is used throughout the discussion.

Phase I: Conducting the Reference Interview

In this first phase, the reference librarian interviews the client, either in person or by telephone, and negotiates the terms of handling the question with the client. There are two steps in Phase I.

Step 1 starts the question handling process. It occurs when a client asks a reference librarian a question, whether in person or on the telephone. The client may perceive the question to be either simple or complex and may expect either a simple or complex answer. The client may also perceive that the level of effort, required by the librarian to handle the question and to find an answer, will be either easy or difficult. The reference interview has begun.

Ideally, the client not only states the question clearly and directly, but also has a clear idea of what kind of a response is appropriate and feasible. In fact, in most cases, the librarian must determine what specific question the client is asking by probing, which involves posing a series of escalator questions. These questions may be open ended or closed.²⁵ The librarian listens to the client's statement of the question and attempts to determine specifically what kind of a response the client expects.

In step 2, the librarian makes a judgment based on his or her initial assessment of the question. As the reference librarian listens to the client frame the question, the librarian is mentally taking the measure of both the question and the client. This initial assessment involves the librarian in making choices regarding how best to handle the question considering the following factors:

- 0 The client's perception of the question and the answer, which, in turn, provides an insight into the client's conceptual framework; and
- 0 The external variables, associated with the client, which might affect the question handling process.

²⁵Marilyn Domas White provides a good description of open and closed questions in her article, "The Dimensions of the Reference Interview," *RQ*, Summer 1981, pp.373-381.

Based on these initial assessments, the librarian will decide whether to treat the question as simple or complex, with an anticipated simple or complex answer.

Phase II: Formulating the Question Handling Strategy

In this second phase, the reference librarian formulates the question handling strategy by matching levels of resources to desired levels of service in order to develop a strategy for handling each question. The strategy is shaped by a number of factors: the librarian's initial assessment of the question and the external variables associated with the client in Phase I; and the impact of internal variables on the librarian's ability to handle the question. There are three steps involved here.

Characterizing the level of reference resources available, both inside and outside the library, is a key element in the reference librarian's decision making process. The reference librarian must estimate what resources are required to handle a given question and then decide what to do if the desired level of resources is not available internally.

The first step involves evaluating the degree of difficulty anticipated in handling a given question. At this point, the reference librarian validates or revises her initial assessment of the question and answer in Phase I. If the librarian perceives the question to be simple with a simple answer, then there is an expectation that the question handling process will be easy and therefore relatively quick. If, however, the librarian and the client agree that the product of the process will be a complex answer, then the librarian expects the question to be at the difficult to very difficult end of the continuum and anticipates that the process of handling it will be time consuming. Perceived difficulty in handling the question is also shaped by the next two steps; that is, the librarian's estimate of the reference resources required given her selection of the appropriate level of service.

In the next step, the model arrays five levels of reference resources which represent the inseparable mix of staff and information resources. If the question requires advanced-state-of-the-practice reference resources and the home library's resources are garden variety, or at the state-of-the-practice level, it might be better to refer the client to another information source outside the library, rather than to try to make a match using resources which are not sophisticated enough. Calculating the trade-offs in handling the question locally versus referring either the question or the client to an outside resource is part of the decision making process.

One would expect that more experienced librarians, who have worked with the collection for a number of years, or with a similar collection in another library, have a head start in deciding whether their home reference resources will do the job. Knowing, at the start, whether there is a match between the resources needed to handle the question and the resources available internally is an essential step in determining how easy or difficult the process will be.

If the reference librarian does choose to handle the question internally, then the next decision is to select the level of service to provide. In this step, the model arrays four options: ready reference, reference, research, and client

referral. The librarian's evaluation of how easy/difficult the question will be to handle is shaped by the level of service selected which, in turn, is shaped by the level of resources available internally.

If the librarian decides to provide a simple answer to a simple question, it will be easy if she is knowledgeable on the subject, has handled a similar question recently, or has the appropriate level of reference resources to tap in her own library. In this case, the level of service she selects is likely to be ready reference or perhaps reference. She would plan to spend less than five minutes and no more than 30 minutes. On the other hand, if the librarian decides that the question requires secondary research to produce some findings, she anticipates spending a good deal more than thirty minutes using the reference resources she has judged to be appropriate.

The concept of easy and difficult is relative and highly subjective. To a generalist librarian, working with a garden variety collection, a complex question, which requires at least state-of-the-practice reference resources, might appear very difficult to handle and be viewed as requiring effort at the research level. To a specialist librarian, working with an advanced-state-of-the-practice collection, the same question may be viewed as easy to handle, requiring effort at the ready reference or reference level.

To summarize, there is a need to match the level of resources to the level of service. Ready reference is deployed when the question is simple. It will take little time, requires quick access to ready reference materials, and usually involves looking up factual information. It is usually initiated and completed while the client is waiting.

Reference level service is deployed when the question is simple. It will take reference staff a half hour or less, on average, to handle the question using information resources which are more sophisticated than ready reference tools, but which still involve looking up information rather than analysis. It is not necessarily initiated and completed within one day.

Research comes into play when the question is complex. Reference staff require more than 30 minutes, on average, to handle the question and usually make use of a number of resources. Handling the question involves analysis by the reference staff and is seldom completed the same day as received.

Client referral is provided when the librarian decides that the question will be better handled by another information provider.²⁶ The librarian identifies alternative information providers and may, in some cases, call or write the provider to smooth the way for the client. The client is handed onto a resource outside the library. Client referral may occur after reference staff have devoted time to trying to handle the question by providing ready reference, ref-

²⁶Note that client referral is distinct from question referral. Question referral is a service option which reference staff may call into play when they are working on a question and cannot find the information by using their own resources. Question referral is one of the inputs which reference staff may choose to draw upon in handling reference and research questions.

erence, or research services; or it may occur immediately after the client has posed the question.

Phase III: Handling the Question

At this point in the process, much of planning and decision making has been accomplished. What remains is for the librarian to handle the question. The reference librarian sets out to find an answer if the targeted level of service is ready reference or reference. If the level of service is at the research level, the librarian will be involved in conducting secondary research and reporting findings.

In the course of handling the question, the librarian may decide that the question has been incorrectly categorized and that a different mix of resources is needed to deliver a different level of service. If this is the case, the librarian goes back to Phase I and starts the process over again. Ideally, the client should be interviewed again before the librarian restructures the strategy for handling the question.

If internal resources do not match the level of service required to handle the question, the librarian may opt for referral. Referral, in fact, allows for two options: either refer the question and then relay the answer/information back to the client; or refer the client together with the question to another source and withdraw from the question handling process.

Phase IV: Reporting the Results

Having completed the action selected, the librarian reports back to the client. If an answer has been found, the librarian provides the information to the client. If the librarian has conducted research in response to a question, the research findings are reported. If the librarian has failed to find an answer, or has exhausted the time available, it is necessary to report back to the client on the lack of success and make a referral, if appropriate.

Phase V: Evaluating Service Delivery

This is the last step in the question handling process. At this point, the librarian evaluates whether the question was handled successfully. The problem, however, is how to measure success. There is a great deal of literature on measuring reference performance. There are no easy ways to evaluate quality of service delivered. The objective measures commonly used are accuracy and turnaround time.

In the State of Maryland, at the Division of Library Development and Services, research suggests that much of the success in reference service is attitudinal and behavioral. The recommendation is to say to the client: "Have I completely

answered your question?"²⁷ A difficulty with user surveys, however, is that most users have a very imperfect concept of what to expect from reference assistance and usually are relatively easily satisfied.

Another approach, which is considered to be highly subjective by some, is to ask the librarian who handled the question whether the results were satisfactory in her professional opinion. By systematically applying the question handling model, it may help reference librarians to sharpen their ability to analyze their success in question handling.

²⁷Ralph Gers and Lillie J. Seward of the Maryland State Department of Education, Division of Library Development and Services, have been involved in a study of reference performance in public libraries in Maryland. They support the view that the behavior of the reference librarian during the course of question negotiation is the chief determinant for predicting a successful outcome of the process. See Gers and Seward (1985).

4. DATA GATHERING

Data collection and analysis are time consuming and therefore expensive activities. Consequently, it is important that only those data be collected which are useful for managing or reporting purposes. This chapter summarizes data collection issues flagged in prior chapters and also describes two data collection efforts conducted during the course of the study. These efforts involved the development of two survey instruments entitled: A Profile of Staff Time During a Typical Week and Characterizing Levels of Reference Resources. Each is described below. Copies of the two forms are given in an appendix to this volume.

4.1 Issues Relating to Data Collection

In the previous chapters, much of the discussion has focused on the need for clear definitions of reference, ILL, and photocopying services which provide building blocks for use in the cost finding model. Happily, the New Jersey Library Network Committee on Policies, Procedures, and Protocols (the Three Ps) has recently issued its Final Report to the State Librarian.²⁸ This report provides definitions and performance targets for reference, ILL, and citation/location services.

The work of the Three Ps is helpful. Some procedural and policy concerns relating to data collection, which were raised by NPL and the BL&R during the study, however, still need to be addressed. The Three Ps recognizes these concerns and refers to them as "meshing" issues. Meshing is a good way to describe the need to streamline and standardize data collection activities by the various parts of the Network.

At present, NJSL collects data to include in annual reports to State government and to monitor the volume of activity in the Network. NJSL does not currently compensate the SCLs on a transaction basis. NPL and the BL&R receive a lump sum for providing state contract services. They are, however, expected to report on the volume of service provided. The SCLs report on their supplemental reference, ILL, and photocopy traffic through a sample survey.

NPL and the BL&R, along with Princeton and Rutgers Universities, have participated in a data collection survey commissioned by the NJSL. They each report data on their supplemental reference, ILL, and photocopying traffic. The first sampling occurred in 1983 and has continued on an annual basis through 1988. The sampling methodology was developed several years ago by Michael Halperin, librarian at the Lippincott Library, University of Pennsylvania, under contract to the NJSL. There has been some concern, particularly at NPL, about

²⁸Final Report to the State Librarian, New Jersey Library Network, Committee on Policies, Procedures and Protocols, Trenton, New Jersey: New Jersey State Library, August 1988.

the reliability of these data. In our opinion, the sampling methodology would benefit from close scrutiny by an outside consultant.²⁹

The Regional Library Cooperatives (RLCs) also collect data on the following required services: supplemental reference, ILL, citation and location service, and delivery. In an effort to give the Regional Contract Library (RCLs) freedom to experiment, NJSL has not prescribed formats or procedures for data collection. NJSL also has not offered guidance to those SCLs which also serve as a RCL in their region.

In NPL's case, it serves as both an SCL for libraries in the State and as an RCL for RLC Region 3. This dual responsibility complicates record keeping and adds more administrative time to its data collection responsibilities. At NPL, keeping track of the number of transactions handled under the state contract versus under the regional contract, while separating out service to local clientele, has become very time consuming and is also probably inaccurate. NPL staff worry about the time taken away from service delivery. They also feel that asking clients to identify themselves has a chilling effect on the reference negotiation process.

The BL&R also has problems differentiating between the clientele served under the terms of its state contract, that is serving all New Jersey libraries in 1987 (which was revised in 1988 to serving to all New Jersey libraries which have joined the Network), and serving the citizens of New Jersey under the terms of its statutory responsibilities. In the case of telephone reference, unless the calling party identifies himself as staff at a library, or is asked directly to do so by the reference librarian, there is no way to differentiate between supplemental and regular questions from local clientele.

Staff are not specially designated to work exclusively on supplemental questions, and there is no special inbound telephone line, such as an 800 number, to handle supplemental questions.³⁰ At present, librarians calling with a referred question seldom identify themselves as members of the Network who are seeking supplemental reference. Therefore, unless the staff at NPL and the BL&R take the time to ask the calling party whether he or she is an end user, or a library eligible to use the Network on behalf of a client, there is no way to track the number of requests by category of clientele.

Streamlining and standardizing data collection for the Network will require leadership from NJSL. It is appropriate for NJSL to oversee and coordinate the collection of data to ensure that data needed for reporting and accountability are collected and that redundancy and ambiguity are minimized. A first step is

²⁹Based on conversations with NJSL staff in the Bureau of Library Development, it appears that a fresh approach to data collection will be instituted in 1989.

³⁰Bottlenecks, occurring at the BL&R because of the use of a dedicated line, led to the decentralization of calls. The result is faster service with less waiting time, but with more time being spent tracking callers.

to continue to tighten up definitions of service and define procedures for counting and reporting transactions.³¹

Counting Supplemental, Regional, and Local Transactions

Instructions on how to count reference, ILL, bulk loan, and photocopy transactions in New Jersey were published in January 1985, prior to the emergence of the Network in 1986 and recently updated in 1988.³² Since the State will compensate libraries for handling supplemental and regional transactions, but not for regular transactions, it is important to define and differentiate between these transactions in the future. Annual transaction counts should be reported in three categories: supplemental, regional, and local or regular.

Categorizing and maintaining an accurate estimate of the number of requests handled is important but numbers alone do not tell the whole story. The characteristics of the requests received by each of the two libraries -- particularly in the case of supplemental reference requests -- need to be better understood. Consequently, it is important to collect two types of data on reference service in the future: numeric and qualitative.

Numeric data are needed to define the universe of questions handled in a given year. Qualitative data are needed to identify the characteristics of supplemental questions and determine whether and to what extent they differ from regular questions. The following discussion summarizes some of the points relating to data collection which were raised during the discussion of the question handling model.

Creating a Universe of Questions Received

Defining the number of questions received is an essential first step in establishing the universe of questions. Counting the number of questions received requires guidelines which address the following issues:

How to count the number of questions received? In 1985, the Three Ps instructed that directional questions be excluded, which is a good principle, but it is not clear how widely followed it is. Training front line staff on data collection is probably the most important element here.

Is it correct to count every question asked by a client as one question? What if the question is, in fact, a set of discrete questions, which we call a compound question. Does a compound question count as one? Perhaps the time to count questions received is after the librarian has completed the reference

³¹Note that the American National Standards Institute (ANSI) is in the process of revising the 1983 standards for library statistics. See American National Standard for Library Statistics. Z39.7-1983. New York: ANSI, 1983. It would be useful to obtain drafts of the revisions as they become available.

³²Final Report to the State Librarian, New Jersey Library Network, Committee on Policies, Procedures and Protocols. January 1985 and August 1988.

interview and has reformulated the question. If, in the judgment of the librarian, the client has asked three separate questions, then they should be counted as three questions, not one.

Characterizing Questions Handled

In order to describe the number of questions handled, it is important to categorize the questions and establish an equivalency which reflects, at least, the level of effort required to handle them. The characteristics of the question handled determine how much time is required, which in turn affects the amount of time available to handle other questions. If one library receives the lion's share of complex questions with complex answers, it will appear to have handled very few questions. Another library receiving mostly simple questions with simple answers will be able to handle many more questions in the same time.

The issue is how best to capture the differences in the characteristics of questions included in the universe? A simple count of the number of questions handled, which is usually referred to as the fill rate, will not capture the difference in inputs required -- that is the level of resources and level of effort deployed -- in handling different types of questions.

One approach might be to develop a weighting scheme which makes a complex question equal to a specified number of simple questions. The complex question would then be assigned a number of "simple question" units. To accomplish this activity, it would be necessary to track time spent on handling simple questions with simple answers, simple questions with complex answers, complex question with simple answers, and complex questions with complex answers. Determining the amount of time required, on average, to handle each of the four combinations of questions/answers would require some analysis and a close monitoring of the question handling process.

An alternative approach could be to track the number of questions handled at each of the four levels of service: ready reference, reference, research, and client referral. The object is to determine how long it takes, on average, to provide service at each level and to decide on a unit of measure which can be applied to all four levels. If the unit of measure is called a "question handling unit," then the issue is how many question handling units are needed, on average, to provide ready reference, reference, research, and client referral. Once there is a common unit of measure, it is possible to add up all the units to characterize the number of question handling units needed to handle the universe of questions received.

Creating a Universe of ILL Requests

Data collection appears to be much less of a problem with ILLs. There are two areas which should be examined in the future: how subject ILLs are counted and how citation and location involving a reference librarian are counted. Based on the Working Group's recommendations, we define all ILLs which involve a reference librarian's assistance as a reference question. If materials are loaned to another library as a result of the reference question, then it would be correct to also count it as an ILL transaction.

4.2 Survey Instrument

Early in the study process, we developed a survey instrument titled Profile of Staff Time Spent During a Typical Week in 1987. Many of the tasks and activities listed in the survey were identified in the process of developing the question handling model. A copy of the survey instrument appears in an appendix to this report. The purpose of the questionnaire was to translate time estimates provided by each respondent into the salary costs of core staff, whom we refer to throughout the study as "surveyed labor." These salary costs are a key variable in the cost finding model.³³ Tables NJL1-2 and NJL2-2 (in Chapter 6 below) summarize the results of the survey and express the time and cost allocation of surveyed staff in terms of both dollars and days. The intent of the survey was to gather detailed data on the labor component of reference services, which is a major part of the variable costs of question handling. The responses to the survey are discussed briefly below.

There are three sections to the survey. Section One is a "Profile of 100% Time Spent During a Typical Week." Section Two is a "Profile of Percent Reference-Related Time Spent on Supplemental Reference During a Typical Week." And Section Three is a "Profile of Staff Time Involved In Interlibrary Loan And/Or Photocopying In Lieu of Loaning." We asked staff in each library, who had been identified by members of the Working Group, to estimate how much time they spent during the course of a typical week in 1987 on question handling, other reference, and on non-reference related activities, which included ILL and photocopying activities. Each section is briefly described here.

Section One

In section one, respondents were asked to report how they divided their total time in 1987 during a typical week between "reference-related tasks" and "non-reference tasks." Reference-related tasks included question handling, and "other reference" functions.³⁴ The other reference category was broken down into eight activities. They represent a composite of tasks specified in the question handling model, with additional activities included to capture a finer breakdown of time spent at each of the two libraries. Other reference includes: developing specialized resources; education and training; management; special projects; consulting; collecting and analyzing data on reference service; reference duties related to ILL; and other reference related activities not reported above.

³³We identified the base salaries of each staff member completing the questionnaire and loaded each salary with benefits, including medical insurance, retirement, and social security, as appropriate for each individual staff member. For both libraries, retirement and social security benefits are not included in the library budgets. Our totals for labor income are therefore higher than figures in the library budgets.

³⁴Question handling includes time spent conducting online searches on bibliographic and full text data bases. It is assumed that time spent handling directional questions is not reflected here, but is reported as time spent on non-reference tasks.

Section Two

All staff who reported that they provided reference-related functions in Section One were asked to estimate what percentage of the total time they spent on each of the nine functions was allocable to providing supplemental reference service.

Section Three

In section three, staff who reported in Section One that they provided ILL/photocopying service exclusively, or who reported that ILL was part of their non-reference duties, were asked to define and estimate, in percentage terms, how they spent their time during a typical week in 1987. The questions were arranged in the following subsections: processing and filling incoming ILLs and photocopying requests from other libraries; processing and filling outgoing ILLs and photocopying requests, initiated by their own library; and performing other non-reference and non-ILL/photocopying activities.

Administering and Coding the Survey

Members of the Working Group were trained by the study consultant to administer the survey instrument to their reference and ILL/photocopy staff. The members of the Working Group identified all full-time and part-time who have reference and ILL/photocopy duties. They met with their full-time staff either in small groups, or one-on-one, to introduce them to the survey form, explain the vocabulary, and discuss with staff how to estimate their time over a typical week in 1987. Working Group members completed the survey forms for several part-time staff who work nights and weekends and whose reference responsibilities are clearly defined.

Group discussions, led by the Working Group, proved very helpful to staff. Many found it useful to identify duties and then compare initial time estimates with other staff who performed the same duties. In order to help staff convert time spent into percentages of a 35 hour week, a "Conversion Chart" was attached to the questionnaire.

We gathered data describing the duties of all part-time and full-time staff involved in providing reference, ILL, and photocopying service at each of the two libraries: 30 respondents at NPL Central and 59 at the BL&R.³⁵ In some cases, supervisory staff filled out questionnaires covering vacant positions, since the positions were funded and included reference, ILL, and photocopying duties. Managers also estimated the time allocation of several part-time staff who were not available to complete a survey form and completed forms for positions which were vacant at the time, but had been funded. In a few cases, staff members had two questionnaires, each covering part of their time, because they filled two organizational slots during 1987.

³⁵Staff at NPL were drawn primarily from cost centers numbered 61-67 in NPL's Mod 5 budget.

At NPL Central, 25 of the 80 respondents are professional staff. The rest are support staff, including paraprofessionals, clerical workers, secretaries, and pages.³⁶ At the BL&R, 25 out of 59 are professionals and the remainder are support staff. At NPL Central, there are 18 part-time positions among the surveyed staff, and 16 at BL&R.

The BL&R was the first to complete the survey. Based on the responses to the section on non-reference tasks, the form was slightly revised for staff at NPL Central. The activity "collection maintenance" was added to the list of the non-reference activities. In conducting our analysis, we also grouped all responses which related to circulation activities under the heading "circulation," although this function was not specifically listed as one of the non-reference functions. In coding the forms, we were able to assign over 50% of non-reference related staff time at both libraries to "collection maintenance" and "circulation."

Analysis of Survey Data

Tables NJL1-2 and NJL2-2 (in Chapter 6) summarize the results of our survey effort. Expressed in terms of time, overall question handling represents the single most time consuming reference function, with staff at NPL Central spending 24.1% of their total time on question handling, and 17.5% at the BL&R. If other reference functions are added to question handling, reference occupies 46.7% of NPL Central staff's time and 39.0% at the BL&R. When time is converted to dollars, reference functions represent 56.3% of total expenditure at NPL Central and 50.3% at the BL&R. The fact that the dollar shares are higher than the time shares indicate that more expensive professional staff are spending time on these functions.

It is interesting to note that time devoted to education and training, managing, special projects, and consulting are similar across the two libraries (NPL Central: 2.0%, 4.5%, and 1.5%; BL&R: 1.9%, 4.0%, and 1.4%). On the other hand, data work (e.g., collecting data for the NJSL) and ILL reference, while occupying relatively small amounts of time, differ across the two libraries (1.1% and 0.9% at NPL Central and 0.6% and 0.4% at the BL&R). Finally, the category of miscellaneous reference, which we call "reference related" activities, uses less staff time at NPL Central (1.4%, compared to 3.2% at the BL&R).

Of the time spent on supplemental reference functions, supplemental question handling represents the largest share at both libraries (41.3% at NPL Central and 32.3% at the BL&R) and is roughly double the time spent on overall question handling. The time spent developing specialized resources is nearly identical for the two libraries and is a very close second to question handling, particularly at the BL&R (28.1% at NPL Central and 29.3% at the BL&R).

For non-reference functions, collection maintenance activities consume the most time at NPL Central (28.1% compared to 20.6% at the BL&R). At BL&R, the great-

³⁶There were also two maintenance and security staff who were included to provide complete coverage for the survey of the staff in the relevant organizational units in the Mod 5 budget.

est amount of non-reference time appears under the "other duties" category (23.1%), which means that staff at BL&R are handling a wider range of non-reference activities than staff at NPL Central, where miscellaneous activities account for 6.7% of total non-reference time. The amount of time spent on ILL/photocopying is quite comparable at the two libraries (11.5% at NPL Central and 10.9% at the BL&R), and time spent on circulation is identical for the two libraries, at 6.4%.

In terms of the cost per hour by function and task, costs are similar for the two libraries. Reference staff appear to be paid on similar scales at the two libraries. There is more variation, however, between the two libraries when comparing data on the cost of providing supplemental reference, when broken down into nine activities. These variations are largely attributable to the small sample sizes and the effect of salary differentials of particular staff members.

4.3 Characterizing Levels of Reference Resources

As mentioned in the discussion of the question handling model in Chapter 3, we asked staff in charge of designated subject collections at NPL Central and the BL&R to take a subjective look at their reference resources and position their collections and staff on a continuum. The purpose of this exercise is to gain impressionistic information, which reveals the extent to which staff in each of the two libraries know how their reference resources compare to those in comparable collections in the State and in adjacent states.

The BL&R recently prepared a collection development policy for their own collections by applying definitions of collection strengths in academic institutions.³⁷ As discussed in Chapter 3, any assessment of reference resources must include reference staff. Our rationale for this view is that without the reference staff, there can be no question handling, since question handling is a mediated service. Reference staff bring experience, expertise, and training which enable them to mine the information resources in an effort to handle questions.

Consequently, the terms we use to define the levels of reference resources embody the combination of staff and information resources.³⁸ Definitions of each resource level appear in the discussion of the question handling model in the previous chapter. To describe the level of reference resources in a given library requires that the local resources be measured against a standard. The

³⁷New Jersey State Library Collections Policy, Compiled and edited by Elizabeth Steckman and prepared under the direction of the Bureau of Law and Reference, Robert Bland and Janet Tuerff, Heads. New Jersey State Library: Trenton, NJ, January 1988.

³⁸They are: garden variety, state-of-the-practice, advanced-state-of-the-practice, and super reference. These terms appear in the study of reference referral by B. Robinson, cited earlier.

standard provides a yard stick against which to compare the characteristics of the inputs.

The first step in characterizing reference resources was to identify that standard, relative to the type of library and the subject emphasis. Using the form we developed to describe reference resources, we asked staff to describe levels of resources in designated subject areas and in "general reference information" for each of their libraries. In order to fit the levels of resources to the context of the particular type of collection characterized, staff were asked to adapt the generic definitions of resource levels developed by B. Robinson to describe public library resources in California. Of particular note was the effort of two staff members at NPL: Mr. William J. Dane, Supervising Librarian, Art and Music Division, and Marianne Avery of the Business Library. Their respective efforts to define garden variety through super reference resources in the context of art, music, and business reference resources appear in Volume II.

In completing this activity, some staff chose to identify, by title, specialized information resources which form the backbone of their subject collections. Ms. Avery went one step further and listed materials which she purchased in 1987 specifically in support of the state contract. According to her estimate, nearly 50% of her 1988 acquisitions were made in order to support the delivery of supplemental question handling.³⁹ A copy of her memorandum is included in Volume II. Staff first characterized staff resources dedicated to designated subject areas. They then described the number of employees who provide reference support, their educational level, and their years of experience in each of the divisions.

The outcome of this comparative and impressionistic assessment exercise revealed that staff at both NPL and the BL&R, who are responsible for managing designated subject areas, are not clear where their collection fits on a continuum of collections on the same subject. For example, staff managing the New Jersey collections at NPL Central and the BL&R found it difficult to compare their collections because they were unfamiliar with one another's collections. One respondent reflected on this problem by saying: "My labeling of the resources of other libraries in New Jersey may be unfair and unjust, as my knowledge of both staff and sources at other libraries is minimal."⁴⁰ Another NPL staff member said:

"When faced with the placement of our own subject divisions within the matrix of similar libraries, I share the reaction of my NPL colleagues: most of our knowledge of what's 'out there' is second-hand,

³⁹Memorandum from Marianne Avery, Supervising Librarian, Business Library, NPL to Barbara M. Robinson, March 4, 1988.

⁴⁰Correspondence between Sallie B. Hannigan and B. Robinson regarding characterizing levels of reference resources, March 18, 1988.

based largely on hearsay, and may not truly reflect reality. Hence, at best, this exercise is just an educated guess."⁴¹

It is strongly recommended that staff at both NPL and the BL&R, who are responsible for designated subject areas under the NJSL contract, be given an opportunity to broaden their horizons. NJSL should require that staff managing designated state contract collection make regular site visits to other libraries in New Jersey, as well as to libraries in neighboring states, on a regular basis. NJSL should also encourage staff who manage designated subject collections to evaluate their collections using an objective tool, such as the Research Library Group's Conspectus or RTSD's Guidelines. And staff should consider the pros and cons of cooperative collection development in a given subject as well.

⁴¹Correspondence with Marianne Avery, Supervising Librarian, Business Library to B. Robinson, March 18, 1988.

5. THE COST FINDING MODEL

5.1 Introduction

A cost finding model is a method of cost determination using available financial data to derive cost data. This chapter describes our approach to creating the "cost finding model" which involves defining and categorizing costs, creating artificial cost centers, and converting line items budgets for each of the two libraries into program budgets.

The cost information gained from the cost finding model serves two functions. It answers the State's question regarding the extent to which the state subsidy covers each library's costs of providing the two services. It also provides the two libraries with insights on the relationship between cost and service which may be helpful in allocating reference and ILL/photocopying resources in the future.

Precision is not our major concern in costing these services. We strike a balance between getting the "right" numbers conceptually and estimating the numbers with adequate precision so that the results are meaningful and provide an order of magnitude of the costs. Keeping sight of the objective of the study, we first identify the components to include in the costs. We are then able to arrive at marginal and average unit cost of providing each service. We do, however, have a view of what cost elements to include and to allocate.

In calculating the cost of providing supplemental question handling and supplemental ILL/photocopying at NPL Central and the BL&R, we first determined, in consultation with staff that the same types of resources -- staff, equipment, materials, and space -- are deployed in providing question handling and ILL/photocopying services, regardless of whether the request is generated by regular or supplemental clientele. Consequently, our initial concern is to determine how much it costs to handle a question and an ILL/photocopy at both NPL Central and the BL&R, regardless of whether the transaction is regular or supplemental. Once having arrived at the base cost for overall question handled and an ILL/photocopy request handled, we can then calculate the cost of handling a supplemental question and ILL/photocopy.

Chapter 6 documents in detail the steps we take to arrive at the unit cost for each service. Those who are not interested in the nuts and bolts of the process may skip to Chapters 7 and 8. These two chapters describe the way we allocated costs in the program budgets to arrive at unit costs.

5.2 Concepts of Cost

In the discussion which follows, we introduce three different cost concepts which shape each library's budget. We use the term cost, rather than expenditure, because some categories of costs are imputed and are not included in the two libraries' operating budgets. The three cost concepts are: fixed versus variable cost; direct versus indirect cost; and operating versus capital cost. A fourth cost concept -- marginal cost versus average cost -- relates to the

output of the cost finding model and is also defined here. Definitions also appear in the Dictionary in the Appendix to this report.

Fixed versus Variable Costs

Fixed costs are those costs which are not related to the amount of service provided. Examples of fixed costs include debt service, depreciation, utilities, and rent or mortgage payments. Variable costs, in contrast, vary with the amount of service provided. Labor costs and the cost of supplies, or other intermediate inputs, represent variable costs.

The distinction between fixed and variable cost depends upon the time horizon. In the long run, all costs become variable. For example, over the long run, one can vary rent costs by changing location or size of physical plant. Similarly, one can change the size of the collection over a period of years. In this study, location, physical plant, and collection size are not assumed to change and therefore costs associated with each of them are treated as fixed.

Direct versus Indirect Costs

The combination of direct and indirect costs is the total or full cost. Direct costs are the costs of labor and materials that can be directly identified in the product or the service. In the study, when we discuss "direct" costs, we mean those costs which are directly associated with the output of a given cost center.

Indirect costs, in contrast, are those costs which are not easily seen in the product or service, but which are part of the cost all the same. Examples of indirect costs are insurance, taxes, rent, utilities, and staff whose time is devoted, in whole, or in part, either to running the library or to maintaining the building, such as the director, other administrative staff, as well as janitorial and security staff. Indirect costs are also referred to as overhead costs in this study.

The more detailed the cost data, the greater the ability to distinguish between direct and indirect costs. Whenever we had enough information to allocate a cost item directly, we did so. For example, rent is commonly treated as an indirect cost in accounting. In our case, we make an effort to identify the use of physical space by programs, and so are able to allocate these costs directly.

Operating versus Capital Costs

Finally, we distinguish "operating" costs from "capital" costs. Operating costs are the organization's recurring annual expenditures. Capital costs are one-time expenditures for capital goods, or fixed assets, such as new construction, major renovations, and purchased equipment. In accounting, capital investments are usually treated in a separate capital budget. State compensation for the provision of question handling and ILL/photocopying services is intended to reflect annual operating costs, not one-time capital investments. Therefore capital expenditures are not included in the marginal and average unit cost calculations.

Capital goods, such as buildings and equipment, however, do provide an annual flow of services which usually appear in an organization's operating budget as either depreciation or amortization. These capital services are not to be confused with capital investments. A library's collection also represents a capital good. The annual flow of services resulting from the use of the collection is an important cost consideration, and is discussed in detail below.

Marginal versus Average Cost

In subsequent chapters, we calculate both the marginal and average costs of question handling and ILL/photocopying. Both ways of expressing unit costs are valid. Deciding whether to compensate NPL and the BL&R for marginal or average unit costs is a policy choice which NJSL will have to make in the future.

The "marginal" cost is defined as the incremental cost of providing one more unit of service. For example, the cost of handling one more ILL or one more question is a marginal cost. In computing marginal cost, one must start from the current volume of services provided. Given current capacity, what is the cost increment required to produce an additional unit of output or service.

The "average cost" of a given product or service is calculated by dividing the total dollar costs of producing or providing the service by the total number of products produced, or by the quantity of service provided. Average costs consist of two types of costs: "fixed" and "variable" costs. These concepts are defined above.

5.3 Cost Categories in a Line Item Budget

All budgets are composed of both fixed and variable costs as well as direct and indirect costs. Usually, operating and capital budgets appear as two separate budgets. In the case of NPL and the BL&R, their line item budgets combine operating and capital expenditures. Since capital costs represent extraordinary costs and are not part of the annual cost of operating a library, we separated the capital costs out and excluded them for our cost finding model.

Each of the two libraries make use of a line item budget to report their annual expenditures. Their budgets reflect the reporting requirements of formal city and state appropriation processes in Newark and in the State of New Jersey. Given a library's operating budget, there are major conceptual differences between a line item budget and a program budget. In a line item budget, the library is the only unit considered. All line item cost categories arrayed are part of the total operating cost of that library. In contrast, a program budget allocates each of the line item costs to particular programs.

If you visualize a budget as a matrix, or spreadsheet, the line items are the rows. A consolidated line item budget has only one column. The program budget adds columns to the line item budget. Each column defines a separate program or cost center. The sums of all rows in the program budget is the consolidated line item budget.

For our purposes, in a series of steps which we describe in the next chapter, we collapsed all the line items or rows in each of two library's line item budgets into the following rows in their operating budgets:

- 0 Total labor costs;
- 0 Materials and services; and
- 0 Capital services.

Total labor costs include salaries and benefits of days worked by all staff at NPL Central and at the BL&R. There are three categories of labor in the program budgets for each of the two libraries: surveyed labor, other direct labor, and indirect labor. The reason for these categories is described in the next chapter.

The line item category, "materials and services," includes two subcategories of costs: "materials and supplies" and "purchased services." "Materials and supplies" are the costs of tangible goods such as office supplies, printing and publications (including all acquisitions), fuel, and maintenance supplies. Within this subcategory, we can track separate line items. "Acquisitions," for example, we can assign directly to one of the cost center categories from other categories, while "fuel," which is a library-wide indirect cost, must be spread across the six program areas according to a formula.

"Purchased services" is a broad cost category which encompasses a variety of services other than library services. These services are purchased from external sources, such as: legal, accounting, engineering, architectural, communications, advertizing, insurance, data processing, utilities, and maintenance. The library buys these services (inputs) in order to operate and to deliver library services (outputs), such as question handling and ILL/photocopying. The two uses of the term "services" are quite different and should not be confused.

Purchased services include a number of library-wide overhead items such as rent, utilities, communications, and insurance. It also includes "organizational and training" costs such as membership fees, training, conference registration, and travel which may be allocated directly to particular program cost centers. There are also contract services such as accounting and auditing, architectural and engineering, financial, and data processing.

Costing capital services raises a number of problems for accountants. It also poses special problems for libraries. In the case of an owned building, the usual accounting practice is to include depreciation charges, along with any mortgage payments, as part of the operating budget. Similarly, a charge for depreciation of any equipment is also normally included in the operating budget as well. The two libraries, however, follow standard government accounting practice which excludes depreciation. In any case, the use of a depreciation charge to estimate the cost of services from these capital goods is undoubtedly an underestimate of their opportunity cost (i.e., the value of the next alternative use of the resources).

For office equipment, the effect of omitting depreciation is relatively minor. Given lack of data, we make no attempt to estimate depreciation charges for equipment. For the library buildings, the impact of ignoring such "housing costs" would be much more serious because the numbers are large. For the buildings, our approach is to impute a rental value for floor space in the two libraries.⁴² This approach provides a direct estimate of the value of the services provided by the buildings. The use of an imputed rental value measures the opportunity cost of the building expressed in terms of the market value of the services provided by the building. In other words, what the space is worth in a commercial market.

The library collection can also be treated as a capital good -- a view which we share and has been discussed in the library literature.⁴³ Such treatment, however, raises a number of accounting problems. Consequently, we have developed a new approach to handle the accounting problems. Our approach is discussed in detail below in the discussion of the collection maintenance cost center.

Transforming a line item budget into a program budget involves three steps. First, we must define the programs, creating "cost centers" for accounting purposes. This process is discussed in the next section. Second, we must identify from the line item budget the cost categories discussed above: direct, indirect, variable, and fixed. Third, we must allocate the various costs to the cost centers defined in the program budget. These steps are described in detail in the next chapter.

In providing us with cost data, staff at each of the two libraries agreed to follow a common set of accounting conventions which we prescribed for this exercise. The data provided, however, are not easily converted from a line item budget into a program budget. In the future, if greater precision is required, the libraries will need to create crosswalks between their line item budget categories and the cost centers in the program budget which we define below and which drive the cost finding model.

5.4 Defining Cost Centers for a Program Budget

The previous chapters defined the types and levels of service which staff provide as they deliver question handling, other reference, and ILL/photocopying services. Libraries do more, however, than provide these three services. For costing purposes, we divide all library functions into seven programs, or cost centers, which will appear as column headings in a program budget which we

⁴²We have to impute rental values because neither library pays directly for space. The technique we use is described in the next chapter.

⁴³Capital goods are goods, such as machinery or equipment, that can be used in the production of other goods.

have created for each of the two libraries. A cost center represents a discrete organizational unit for accounting purposes.⁴⁴ The seven cost centers are:

- (1) Question Handling;
- (2) Other Reference;
- (3) ILL/Photocopying;
- (4) Collection Maintenance;
- (5) Circulation/In-House Use;
- (6) Other Programs; and
- (7) Public Space.

The program budget with seven cost centers is the major building block in our cost finding model. The cost centers we have created are artificial accounting entities. No physical organizational counterpart exists at either NPL Central or the BL&R. These seven cost centers appear as columns in the tables which follow in this and subsequent chapters. The steps we took to translate each library's standard line item budget into a program budget are described in the following chapters.

The focus of the cost finding model is on the first two cost centers: Question Handling and ILL/Photocopying. Of the five remaining cost centers, two provide intermediate services to question handling and ILL/photocopying. They are Other Reference and Collection Maintenance. The Circulation/In-House Use cost center reflects the functions associated with the use of the collection, while Public Space captures the use of the building for other than library functions. We have also created a catch-all cost center called Other Programs. This cost center captures the functions and costs of all other programs which have not been attributed to the other six cost centers.

All but two of the cost centers provide services directly to library patrons. Other Reference and Collection Maintenance represent programs whose function is to provide intermediate inputs into all the other cost centers except Other Programs.⁴⁵ To reflect this concept, in a later chapter, we will shift Other Reference and Collection Maintenance from being columns, or cost centers, to being rows, or item costs.

In order to allocate the costs of Other Reference and Collection Maintenance to the other cost centers, we had to decide how much the five other centers use the "outputs" of these two cost centers. Defining these outputs and determining how much the other programs use them raise a number of conceptual and accounting problems. In dealing with these issues, we found it necessary to go beyond the standard accounting practices, especially in our treatment of the collection maintenance cost center. Below, we describe the functions of the seven cost centers, and discuss in detail our treatment of the collection under the Collec-

⁴⁴When a cost center is intended to generate net revenue over costs, it is called a profit center. Generating revenue is not part of the mission of either library, so the term cost center will be used here.

⁴⁵In fact, in NPL Central 10% of reference costs are allocated to Other Programs. See discussion in Chapter 7.3.

tion Maintenance cost center. Our approach to defining and allocating the outputs of Other Reference and Collection Maintenance is described in the two subsequent chapters.

(1) Question Handling

Question handling is one of the four reference functions and is the main focus of our effort to cost "supplemental" reference. In our cost finding model, we collapse the three remaining reference functions into a single category we call Other Reference. This approach ensures that the question handling function is costed separately from these other reference functions.

(2) Other Reference

Other Reference includes three reference functions: developing specialized resources, education and training (of reference staff), and quality control. Staff at both libraries state that question handling cannot be performed effectively without drawing on products and services produced by this Other Reference cost center. We agree with this perception and it is therefore defined as one of the cost centers in the program budget.

As we said above, we view this cost center as providing a service which is an intermediate input supporting the Question Handling cost center. The intermediate service includes the preparation of bibliographies, union lists, information files, as well as the selection by reference staff of materials for collection development. These activities all support the question handling function and enable reference librarians to handle questions more effectively.

(3) Interlibrary Loan (ILL)/Photocopying

Services provided by this cost center combine two functions: ILL and photocopying of materials. We use the term photocopying broadly to include the provision of a surrogate for an item in the collection. As discussed in an earlier chapter, photocopying is so integral to the ILL process that we view it as part of ILL. For example, items which do not circulate and therefore cannot be loaned can be photocopied and provided to a requesting library. Excluded from this cost center are requests for subject ILLs which involve mediation by a reference librarian. Such requests would be considered part of question handling.

(4) Collection Maintenance

The Collection Maintenance cost center handles all aspects of the care and feeding of the library's major asset -- its collection. The collection includes monographs, serials, microforms, audio visual materials, and CD ROM. The concept of collection maintenance brings together a number of functions and line item costs which are usually scattered across different organizational units in a library, such as:

- ordering;
- acquisitions (both new, standing orders, and replacements);
- processing;
- cataloging (including OCLC);
- retrospective conversion;
- first-time shelving;
- binding;
- weeding (deselecting, deaccessioning and withdrawals);
- preserving;
- repairing;
- shelf reading;
- off-site storage; and
- on-site housing.

As is evident from the list of activities above, we use the term "maintenance" very broadly when we refer to the functions of this cost center. The concept of collection maintenance, as used here, is not to be confused with the indirect costs of overall maintenance of the physical plant. Indirect staff costs of maintaining the overall physical plant appear in the tables which follows, as a row called Other Labor. The indirect costs of maintenance supplies and contract services, appear in a row called Materials and Services.

A library's collection represents a major part of its "capital stock." Capital stock usually refers to capital goods, such as plant, equipment, and other productive resources held by an organization. A library collection, however, presents special problems when treated as a capital good. The collection provides an annual flow of services which have to be given a dollar value on an annual basis. In principle, the accounting problem is similar to that of costing the flow of services from any capital good.

For example, an owner-occupied house provides "housing services" whose dollar value can be computed two different ways. First, one can estimate the imputed rental value of the house. What would it cost per year to rent an equivalent house? While feasible for housing, where the rental market is well developed, this approach does not apply to libraries as there is no rental market in entire library collections.⁴⁶

A second approach is to estimate the dollar value of the capital stock embodied in the house which is "used up" or "depreciated" in a year. This depreciation charge, plus all maintenance costs such as painting and repairs, would provide a measure of the dollar cost of the housing services actually incurred annually by the owner-occupant. The idea behind this second approach is that the capital value of the house is to be amortized over its useful life, setting aside a depreciation charge that will be enough to buy an equivalent house when the existing one wears out. Alternatively, the amortization charge can be seen as

⁴⁶Many public libraries do maintain small rental collections of best sellers which are selected from "plans," provided by companies such as McNaughton Book Services, a division of Brodart Company.

providing resources required to maintain the house so that it can provide the same flow of housing services forever.

The problem with the second approach is that it is difficult to estimate the correct depreciation charge. Tax accountants assign a useful life to a capital good in years, and then assume it will wear out or depreciate according to some simple formula (e.g., a fixed share per year). For a building with a life of 20 years, this approach would assign a depreciation charge of 1/20 of the original purchase price per year. A major problem with this accounting procedure is that it does not take into account price changes over time. When prices rise over time, the depreciation charges calculated this way will not set aside enough money to buy a new house at the end of the useful life of the current house. An alternative is to revalue the house every year, estimating its current market value, and then charge depreciation against the new value. While this second approach represents standard accounting practice (although not for tax purposes), it has severe problems when applied to a library. We can estimate the original cost of the current collection, but it is very difficult to estimate its current dollar value. Again, there is no market standard to use -- entire library collections are not sold that often.

One approach might be to use replacement value, but that raises other problems since many titles in a large library collection are out of print and are no longer available on any market. If out of print titles are available, they are often very expensive when purchased in the reprint or second hand markets. Furthermore, the purchase price is only part of the cost of adding an item to the collection. The combined cost of selecting, ordering, cataloging, processing, and first-time shelving is significantly greater than the original purchase price of the item. The valuation issue is very important because the differences in total dollar value of the collection under the alternative valuation approaches are huge.

Our solution to this problem is to go back to fundamentals. The idea behind treating a capital good in a special way is the recognition that it yields a flow of services over time, a flow which must be valued in dollar terms. A library collection, however, is not comparable to a machine that wears out or becomes obsolete over time.

In order to generate the same flow of services, a library collection must be constantly weeded and replenished. Titles must be replaced, rebound, preserved, and repaired and new titles must be selected, ordered, processed and cataloged. As the list of activities above indicates, our collection maintenance cost center handles all the activities associated in any way with providing the services of the library collection to the other functional units in the library.

This cost center can be seen as generating an output called "collection services." It uses the library's collection of books and other materials, but it also provides a wide variety of "collection maintenance" services required to make that collection usable by the library staff and by the public. As we indicated above, our cost finding model will allocate these "collection services" as an intermediate input used by other cost centers in the library. The total annual budget of this cost center measures the costs of maintaining a flow of "collection services" to other units in the library.

A difficulty with our approach is the treatment of new acquisitions. If the collection is a capital good, acquisitions should be treated as a capital investment, analogous to buying new machinery. We, however, treat all acquisitions as an annual cost which we charge to the collection maintenance cost center. We take this approach because we view annual acquisitions as "replacement investment" which offsets reductions in the collection that occur through weeding, loss, theft, damage, and wear.

Our assumption is that the budget of the Collection Maintenance cost center suffices to provide collection services to the library that year and to maintain the ability of the collection to be used in the same way the next year. Even though new items are added and old ones discarded, the collection provides the same level of services. Implicitly, we are assuming that the overall size of the collection is not changing significantly.

In a period in which the collection size expands significantly, our approach would overestimate the value of the collection services provided by the cost center, since we include investment for expansion in the current annual budget. Similarly, if the collection shrinks, then our approach will underestimate the value of collection services being provided. Given the mature status of the collections at NPL and the BL&R, and the relative stability of their acquisitions budgets in recent years, our approach is sound. In a large library, even in a period of expansion, the expansion investment component would likely be small compared to the replacement component.

If a library's collection were changing significantly, it would still be feasible to estimate separately the replacement and the expansion investment. Over time, with data on collection size, it would be feasible to estimate what part of the budget of the cost center is devoted to investment for collection expansion. One could then adjust the estimate of the annual dollar value of collection services by deducting all of the costs associated with expansion investment component.

(5) Circulation/In-House Use

Circulation is a service which involves loaning library materials to individuals who come into the library to borrow them. NPL, for example, loans books, magazines, recordings, maps, video cassettes, pictures, art slides, pamphlets, 16mm films, and computers. The Circulation cost center also includes services relating to "in-house" use of the collection. Therefore the Circulation cost center includes functions which support the use of the collection by the public, whether material is charged out or used in-house. For example, it provides a circulation system which delivers "collection services" to library clientele and performs an inventory control function at the same time.

Direct labor costs include the loaded salaries of the circulation staff and the shelving staff, minus first time shelving costs which are allocable to the Collection Maintenance cost center. In the future, it would probably be appropriate to allocate a percentage of reference staff time to this cost center as well. During the course of any given day, reference librarians will spend time explaining to users the rules and procedures governing the library and its

collections and services, and providing directional assistance. Our survey, however, did not identify specifically how much time was spent performing this function, which ideally should be handled by circulation staff, but inevitably often comes to the reference desk.

(6) Other Programs

Other Programs is a catch-all cost center. It provides a way of accounting for all services offered by the library, exclusive of question handling, other reference, ILL/photocopying, collection maintenance, circulation, and public space. NPL, for example, offers storytelling sessions for children; poetry contests; books-by-mail for the homebound, physically handicapped, and senior citizens; a monthly calendar of events at the main library; a reserve service for notifying patrons when an item in the collection is back in circulation and available for loan. It offers a variety of services through the branches. All branch costs appear under Other Programs. Since the costs of operating the library for the blind and handicapped and the Access Center are unrelated to the BL&R's responsibilities, they also appear in this category.

(7) Public Space

Public Space is the last cost center. It provides space to clientele for other than library-related activities. Included in the responsibilities of this cost center are the provision and maintenance of reading rooms, meeting rooms, and space devoted to equipment for use by the public such as typewriters and pay telephones. It can be thought of as separable from the library's primary function which is to serve as a library facility with library staff and library collections.

For example, students often use the library as a study hall. They may do their homework in the library but never draw on the library's staff or materials. For these students, the library affords a relatively quiet work space. Similarly, when outside groups book meeting rooms in the library, the professional-library staff and the library collections are superfluous in this case.

Probably a small portion of reference staff salaries should be allocated to the Public Space cost center, in the future, because reference staff do provide directional assistance to the public who seek meeting rooms and other public facilities.⁴⁷ Our survey, however, did not identify specifically how much time was spent on directional questions.

⁴⁷The two libraries state that directional questions, relating to the location of public facilities, are not included in the count of questions received.

6. CREATING PROGRAM BUDGETS FOR TWO LIBRARIES

6.1 Introduction

Now that we have defined the seven cost centers, the next two chapters describe the steps involved in transforming each library's budget from a line item budget into a program budget. This chapter presents, in outline form, the mechanics of creating those program budgets. Six summary tables for each of the two libraries accompany the text. Chapter 7 discusses succeeding steps involved in implementing the cost finding model and Chapter 8 reports the final results. Readers who are not concerned with the details of transforming a line item budget into a program budget may turn to the next chapter.

In order to create program budgets for each of the two libraries we had to become thoroughly familiar with the details of each library's line item budget. Over a period of months, financial and programmatic staff at each library explained, in detail, their internal operations, their accounting conventions and their detailed manpower budgets. Working closely with these staff, we systematically examined the line items in their respective budgets in order to fit them into the program budget. In this painstaking way, we collectively translated every item in each line item budget into the program budget.

This translation process involved a number of iterations. We created a series of linked spreadsheets, starting with each library's original line item budget (Table 1) and ending with the program budget by cost center (Table 6). Many intermediate tables were created in the process of refining and aggregating line item information. They appear in Volume II.

We show only four intermediate summary tables here: Time and Cost Allocation of Surveyed Staff (Table 2); Summary Labor Budget (Table 3); Summary Materials and Services (Table 4); and Summary Imputed Rent Costs (Table 5). Tables 2 through 5 allocate costs to the seven program budgets. Tables for NPL are named NJL1-1 to 6. Tables for NJSL are named NJL2-1 to 6.

Table 1 for each library presents a summary of their respective line item budgets. These two tables are very close to the original versions used by the two libraries for their own reporting purposes. Note that the NPL budget is for calendar year 1988 and has six months of overlap with NJSL's fiscal year 1987 budget. We used NPL's 1988 budget because it was the first year in which NPL used their new Mod 5 budget. For our purposes, the Mod 5 budget was vastly superior to their earlier approach. The Mod 5 budget provides separate budgets for each of the administrative units at NPL, which made our task of translation

much easier⁴⁸. The NJSL budget is organized by funding source rather than by function, which made the job of translation much more difficult.⁴⁹

Creating a cost finding model is part art and part science. In consultation with the financial staff and members of the Working Group we made a series of decisions regarding how to allocate costs at NPL and the NJSL library to each of the seven cost centers. Our strategy was first to identify and allocate all costs which could be directly allocated to one of the cost centers. Then, we allocated all remaining indirect costs according to a simple rule: allocate according to the shares of the total costs of the "directly allocated labor." As we note below, the amount of such indirect labor costs was a small share of the total labor costs.

This chapter summarizes our approach to allocating all the costs of labor, materials and services, and imputed rent among the seven cost centers. The next chapter takes two of the cost centers -- Collection Maintenance and Other Reference -- and converts them into cost categories which are, in turn, allocated to the remaining cost centers.

6.2 Labor Costs

The largest cost of operating any library is the cost of staff. The share of labor costs at NPL and NJSL are virtually identical, 63.7% and 63.6% respectively (Table 6). Consequently, determining loaded labor costs and allocating these costs is an important step. Our initial concern was to arrive at the cost of productive work days of those staff who are directly associated with the delivery of question handling, other reference, and ILL/photocopying service.

To do so, we first asked managers in each of the two libraries to identify these staff members. We then asked each staff member to complete a survey form in which they described how they spent their work time over the course of a typical week (see Chapter 4.2 for a description of the survey instrument). Surveyed staff included full-time and part-time staff at all levels. Managers, professionals, and support staff who were directly involved in the provision of one or more of these functions are included. Surveyed staff at NPL represented 29.5% of total labor costs, and 33.8% at NJSL (Table 3). The results of the survey are summarized in Table 2 for each library.

⁴⁸Tom Banker, former Acting Director of NPL, created the Mod 5 budget in 1987. It creates cost centers or programs for 21 units in the library. Costs associated with each unit are tracked monthly and annually. Since 1988 was the first full year of implementation of Mod 5, we work with data from that year.

⁴⁹In addition to working with NJSL's line item budget for FY 1988, we used the NJSL tables entitled "Minor Object Detail by Program Class" and their companion personnel budget entitled "Salary Detail." The latter reports budgeted annual salaries for each employee. We needed both documents in order to translate the line item budget into the program budget.

Work Days of Surveyed Staff

To arrive at the number of productive work days for each surveyed staff member, we applied the following formula:

0 We assume 6.5 productive work hours per day, or 32.5 productive work hours per week, which is based on a 7 hour work day, with 30 minutes for breaks at each of the two libraries. This is a generous assumption, since industry estimates for the labor force suggest that office workers spend considerably less than this time working. For lack of concrete data, however, we assume that the surveyed staff are a dedicated hard-working group.

0 Accounting for holidays, the work year in both libraries, for full-time staff, consists of 244 working days.

0 We then deduct the number of earned vacation days reported by each surveyed staff member from the annual number of work days. In a few cases, when data on the number of earned vacation days are not reported, we estimate the number of vacation days earned by using the staff member's job classification category to determine the number.

0 Since we did not have data on sick leave or personal days taken by surveyed staff in either library, we could not adjust the number of work days to reflect this loss of productive work days. Consequently, we are once again overly optimistic in our calculation of productive work time. In a future costing exercise, it would be useful to collect this information.

Loaded Cost of Surveyed Staff

To arrive at the loaded cost of surveyed staff, the costs of employer contributions to total benefits, including social security, health insurance, and retirement pensions, were added to the base salaries of surveyed staff.⁵⁰

0 For surveyed staff, estimates of these benefit costs were made for each individual.

0 Most of these benefit costs are paid by the parent organization of each library (the State or City government) and therefore do not appear in either library's line item budget. We adjust their line item budgets to include the costs of benefits paid by the parent organization.

Once we calculate the loaded cost of each surveyed staff member, we then allocate these loaded costs to the seven cost centers according to the time allocation shares each staff member reported on the survey form. In other words, if

⁵⁰At NPL, some of the staff contribute to social security while others contribute to a city pension fund.

a staff member reports spending 25% of her time on question handling, 50% on other reference, and 25% on collection maintenance, then her time is converted into loaded labor costs and is allocated to these three cost centers according to the amount of time she estimates spending on each.

Table 2 summarizes the time and cost allocations made for surveyed staff. The time spent on reference function #1 ("question handling") is allocated to the Question Handling cost center. Time spent on reference functions #2-9 is allocated to the Other Reference cost center. Time spent on non-reference functions is allocated to the remaining cost centers.⁵¹ Table 2 also provides information on time spent on supplemental reference functions. These data are discussed in the next chapter.

Overall, surveyed staff accounted for 30-34% of total labor costs in the two libraries. Furthermore, when the labor costs of Question Handling, Other Reference, and ILL/Photocopying are combined, the surveyed staff account for much higher shares of the total labor costs: 87.0% for NPL and 77.6% for NJSL. Clearly, the survey has succeeded in capturing the significant labor costs associated with those functions which are the focus of the study.

Loaded Cost of Other Labor

We refer to all remaining staff as "other labor," in order to differentiate them from those staff we surveyed. To arrive at the loaded cost of "other labor," the costs of employer contributions to benefits such as social security, health insurance, and retirement pensions are added to the base salaries of other labor using average benefit rates.

0 Whenever we can directly assign "other labor" -- whether individual staff members or units of staff members -- to one of the seven cost centers, we do so. We refer to staff costs which are directly assigned as "directly allocated labor."

0 To arrive at the total cost of directly allocated labor in each cost center, we add "other labor" costs to the costs of surveyed staff. cost On average, these directly allocated "other labor" represent 57.8% and 51.7% at NPL and NJSL respectively. When surveyed staff costs are added, we are able to allocate directly 87.3% and 85.5% of the total labor budget at NPL and NJSL.

0 The remaining "other labor" costs are composed of indirect labor costs of library administration and "overhead" staff, which includes maintenance and security.⁵² These "other labor" costs represent 12.7% and 14.5% of the total labor budget at NPL and NJSL respectively.

⁵¹Time spent on "other duties" was allocated to Other Programs.

⁵²At NJSL, only administrative labor are counted as indirect labor. Security and maintenance functions are provided by the State and are not included in the library's budget.

0 We allocate these indirect "other labor" costs across cost centers using the following rule: allocate all indirect "other labor" costs according to the shares of the total costs of the "directly allocated labor." These percentage shares appear in Table 3 for each library.

Note that for NPL, the labor costs of staff associated with the physical plant includes maintenance and security staff. NJSL, however, does not pay for these services and was unable to impute a salary for the maintenance and security services paid for by the State. The fact that NJSL has not been able to impute a cost for security is not serious, given the fact that NJSL has only one security guard on duty. For Central NPL, security is a much bigger problem and there is a significant line item cost for security guards in the Mod 5 budget.

6.3 Costs of Materials and Services

As we stated in the previous chapter, this cost category summarizes two subcategories of costs: materials and supplies and the costs of purchased services. A number of intermediate tables, which are not shown here, identify and allocate a wide range of line items which belong to one of the two subcategories. Tables NJL1-4 and NJL2-4 give the aggregates.

We separate acquisitions from materials and services costs and allocate this cost directly to the cost centers.⁵³ Acquisitions represents 42.7% of total materials and services costs for NPL, and 38.3% for NJSL. We also separate out rent. Since neither library pays directly for the cost of housing the staff and collections, we impute a dollar value to rent and show it as a separate line item in the program budget. It is discussed in the next section.

"Other direct" costs represent those costs we are able to allocate directly to cost centers. Included in this line item are data processing services, such as the cost of using OCLC, and the costs of online searching costs of commercial databases. We succeed in allocating directly many more of the costs of materials and services at NPL (33.9%) than at NJSL (14.4%) because of breakdown given in the Mod 5 budget.

We treat the remaining costs, which are not directly allocated, as overhead or "indirect" costs. Costs in this category include some materials and supplies, such as fuel and maintenance supplies; and purchased services provided by external sources, such as legal, accounting, engineering, architectural, insurance, and utilities.

We allocate these indirect costs by applying the rule we used above to allocate the indirect costs of "other labor"; that is, these indirect materials and services costs are spread in proportion to the shares of directly allocated labor costs. At NPL, we are able to allocate directly all but 23.4% of the materials and services costs as overhead or indirect costs, while at NJSL nearly half (47.3%) appear as indirect costs.

⁵³The Public Space cost center, as noted in the previous chapter, does not draw on the collection in the delivery of services.

6.4 Imputed Rent Costs

Rent usually does not appear as a line item in library budgets because libraries do not usually pay directly for space. Rent is usually treated as an in-kind contribution by the parent organization. Such is the case for both NPL and NJSL. In order to capture all the costs which go into the delivery of services by Central NPL and the BL&R, however, we impute a rent for the space in both facilities. The imputed rent cost implicitly takes account of building depreciation costs, a cost which should appear in an operating budget.⁵⁴

We used Black's Office Leasing Guide to determine the rate for rental office space in NPL's and NJSL's neighborhoods.⁵⁵ "Rentable space" is defined by Black's as the interior space, exclusive of toilets, elevators, corridors, pillars, and space used for electrical and other services. For both Newark and Trenton, we value rentable space above grade at \$15 a square foot. We value below grade space at less than half the value of above grade space, or \$7 a square foot.

We then asked staff in each library to provide floor plans and to measure the physical space used by each of the departments and services in each of the two libraries.⁵⁶ Off-site storage space, used to house portions of the collection, was included in the calculation, as was the Business Library, a separate facility on Commerce Street in Newark.⁵⁷ Based on drawings and measurements provided by staff, we calculate that there are 115,068 square feet of rentable space at NPL. The total imputed value of this rentable space is \$1,474,400, or an average of \$12.83 per square foot.

⁵⁴Depreciation on capital equipment does not appear in our program budgets, because neither library is able to provide information on the total costs of equipment at the time of purchase.

⁵⁵ Black's Office Leasing Guide, Winter 88: Northern New Jersey Office Space Market. Black's Guide Inc. A Division of McGraw Hill Information Systems, Co. Redbank, New Jersey, 1988.

⁵⁶NPL has gone through a number of reorganizations and renovations in recent years, and existing floor plans were too outdated to be useful. Joe Casale, Principal Librarian, Acquisitions Division, spent a great deal of time drawing rough floor plans to scale for us and identifying how the space is currently used. The main building occupies six floors, two of which are subbasement. Together, they represent 88,240 square feet of rentable space. In addition, adjacent to the main building, the three story maintenance building occupies 14,550 square feet of rental space.

⁵⁷The Newark Evening News occupies 2,619 square foot of a warehouse off-site and stored reference materials are housed at the Vailsburg and North End branches. Together, these two collections occupy 1,315 square feet. The Business Library occupies 8,960 square feet of rentable space.

NJSL recently updated its floor plans because its architects handling their renovation and construction projects needed current floor plans. For NJSL, we impute a value of \$915,300 to 75,207 square feet of rentable space, which is all in one building on State Street in Trenton. The average rent is \$12.17 a square foot.

We then translate the space designated for NPL and NJSL departments and services into space belonging to the seven cost centers.⁵⁸ This activity is comparable to transforming the line item budget into a program budget. Whenever we can directly allocate rental space to one or more of the seven cost centers, we do so. As Table 5 shows, we are able to directly allocate 78.7% of space at NPL and 81.7% at NJSL, which represents an imputed direct rent cost of \$1,159,900 and \$748,200 respectively.

Space that we are unable to allocate directly to the seven cost centers is treated as indirect or overhead space. It is allocated to cost centers using the allocation rule above; that is, according to shares of the directly allocated labor costs. Included in this category of overhead space is space used for administration and staff lounges. We spread less than one quarter of total rental space library-wide for each of the two libraries. NPL's indirect space amounts to 21.3% for an imputed indirect rent of \$314,500 and NJSL's is 18.3%, or \$167,100.

6.5 Creating a Program Budget

At this point, we have created an program budget for each of the two libraries. Table 6 pulls together the seven cost categories discussed above. The rows in Table 6 are: "total labor" (which is broken down into "surveyed staff" and "other labor"), "materials and services," "imputed rent," and "total cost" of each cost center. A final row and column gives the composition of total costs by rows and columns. To facilitate comparison, the two percent composition rows are brought together in Table 6.1 below.

Each library's line item budget is fully allocated in this program budget. Indeed, as we indicated above, we expanded each library's line item budget to include costs for which the library does not pay directly, such as staff benefits and imputed rent. The following table shows the percentage shares of the total program budget which are allocated to each of the seven cost centers.

When comparing the total costs for each of the cost centers at NPL and NJSL, it is intriguing to see the similarity in composition of the two program budgets. This similarity is particularly surprising because NPL and NJSL differ in their missions, size of staff, collections, and physical plant. NPL is a public library with a large staff, large collections, and a large building. NJSL is

⁵⁸Oliver Gillock, Coordinator of Library Planning and Development of the NJSL, provided information on how the space is being currently allocated to staff and services. We created a number of intermediate tables in the process of allocating the square footage to the seven cost centers in each library. These tables appear in Volume II.

Table 6-1: Program Budgets for NPL and NJSL
(Percentage Shares by Program)

	<u>Question</u> <u>Handling</u>	<u>Other</u> <u>Ref</u>	<u>ILL/</u> <u>Photo</u>	<u>Collect.</u> <u>Maint.</u>	<u>Circ/</u> <u>inhouse</u>	<u>Other</u> <u>Progs</u>	<u>Public</u> <u>Space</u>	<u>Total</u>
NPL	7.1	6.6	2.6	44.5	5.2	31.2	2.8	100.0%
NJSL	7.1	8.2	4.9	33.1	1.4	44.0	1.4	100.0%

Source: Tables NJL1-6 and NJL2-6, for NPL and NJSL respectively.

a special library with a relatively small staff and building, but with some very large collections. These program budgets provide the foundation for the analysis in the next chapter.

NJL1-1: Line Item Budget, NPL
(\$1000s)

Category	Unit:						
	Director (11)	Business (21-24)	Dvlpmnt (31)	External (32)	Graphics (33)	Physical (41-43)	Tech serv (51)
1 Salaries and wages	102233	298808	42109	61286	75723	690793	63569
2 Overtime and release	21000	6000	2500	0	0	60000	15000
3 Other pay	0	280000	0	0	0	0	0
4 Subtotal: personnel	123233	584808	44609	61286	75723	750793	78569
5 Insurance benefits (90)	10669	51578	3934	5405	6679	66217	6930
6 Total labor costs	134102	636386	48543	66691	82402	817010	85499
7 Utilities	0	0	0	0	0	145000	0
8 Data processing	0	10000	0	0	0	0	0
9 Education/training	26000	2550	17000	0	0	2550	3050
10 Other services	0	243000	0	0	10000	149500	0
11 Subtotal: services	26000	255550	17000	0	10000	297050	3050
12 Books/publications	9650	0	0	0	0	0	0
13 fuel	0	0	0	0	0	55000	0
14 Other materials/supplies	0	63000	0	0	23300	76800	0
15 Subtotal: materials	9650	63000	0	0	23300	131800	0
16 Subtotal w/o benefits	158883	903358	61609	61286	109023	1179643	81619
17 Equipment purchase	0	158014	0	0	0	10000	0
18 Total w/o benefits	158883	1061372	61609	61286	109023	1189643	81619
19 Total with benefits	169752	1112950	65543	66691	115702	1255860	88549

Category	Acquist (52)	Bindery (53)	Catalog (54)	Circul (55)	Cent lib (61)	Support (62)	Arts (63)
1 Salaries and wages	233545	75987	289642	227708	81752	301446	235399
2 Overtime and release	0	0	0	0	50000	0	0
3 Other pay	0	0	0	0	0	0	0
4 Subtotal: personnel	233545	75987	289642	227708	131752	301446	235399
5 Insurance benefits (90)	20598	6702	25545	20083	11620	26586	20761
6 Total labor costs	254143	82689	315187	247791	143372	328032	256160
7 Utilities	0	0	0	0	0	0	0
8 Data processing	75000	0	50000	0	70000	0	0
9 Education/training	0	0	0	0	13750	0	0
10 Other services	0	40000	0	0	0	25000	0
11 Subtotal: services	75000	40000	50000	0	83750	25000	0
12 Books/publications	0	0	0	0	0	14475	53075
13 fuel	0	0	0	0	0	0	0
14 Other materials/supplies	0	2500	0	0	0	0	0
15 Subtotal: materials	0	2500	0	0	0	14475	53075
16 Subtotal w/o benefits	308545	118487	339642	227708	215502	340921	288474
17 Equipment purchase	0	0	0	0	0	0	0
18 Total w/o benefits	308545	118487	339642	227708	215502	340921	288474
19 Total with benefits	329143	125189	365187	247791	227122	367507	309235

NJL1-1: Line Item Budget, NPL, cont.
(\$1000s)

Category	Sciences (64)	Humnts (65)	Business (66)	New Jer (67)	Popular (68)	Branches (71-85)	Row Totals
1 Salaries and wages	201811	216985	233277	241988	348883	1194200	5217102
2 Overtime and reises	0	0	0	0	0	23229	177729
3 Other pay	0	0	0	0	0	0	280000
4 Subtotal: personnel	201811	216985	233277	241988	348883	1217429	5674831
5 Insurance benefite (90)	17799	19137	20574	21341	30786	107373	500500
6 Total labor costs	219610	236122	253851	263307	379631	1324802	6175331
7 Utilities	0	0	0	0	0	88050	231050
8 Data processing	0	0	0	0	0	10300	215300
9 Education/training	0	0	0	0	0	8200	73100
10 Other services	0	0	0	0	0	28000	495300
11 Subtotal: services	0	0	0	0	0	132550	1014950
12 Books/publications	184050	135100	115800	38800	130275	303975	965600
13 fuel	0	0	0	0	0	15500	70500
14 Other materials/supplies	0	0	0	0	0	0	165600
15 Subtotal: materials	184050	135100	115800	38800	130275	319475	1201100
16 Subtotal w/o benefite	365861	352085	349077	280586	479138	1869454	7890881
17 Equipment purchase	0	0	25000	0	0	0	193014
18 Total w/o benefite	365861	352085	374077	280586	479138	1869454	8083895
19 Total with benefite	383650	371222	394651	301907	509908	1776827	8584395

Source: The Mod 5 budget for Newark Public Library, calendar year 1988.

Notes:

The column numbers are unit numbers from the Mod 5 budget. As noted, some units have been aggregated. In particular, the budgets for all the branches have been combined.

"Insurance benefite" (row 5) are given a special budget number (90) in the MOD-5 budget. We have allocated them as a row, using the average markup (8.8%) on total personnel costs. Thus, row 18 ("Total w/o benefite") reconciles with the Mod 5 unit totals. Note that these insurance benefite account for only part of the total benefite received by workers. Other benefite are paid out of the city budget.

Table NJL1-2: Time and Cost Allocation of Surveyed Staff, NPL Central

	Total dollars (\$1,000s)	Percent shares: dollars	Total days	Percent shares: days	Cost per hour
----- All Activities -----					
<u>Reference functions:</u>					
1. Question handling	564.0	29.2%	3798.0	24.1%	\$22.84
2. Develop resources	216.3	11.2	1594.5	10.1	20.87
3. Education/training	48.2	2.5	308.3	2.0	24.03
4. Management	122.3	6.3	704.0	4.5	26.72
5. Special projects	122.3	6.3	187.6	1.2	23.38
6. Consulting	35.2	1.8	229.3	1.5	23.62
7. Data work	26.5	1.4	167.0	1.1	24.45
8. ILL reference	19.0	1.0	145.8	0.9	20.08
9. Reference related	28.1	1.5	226.5	1.4	19.08
Subtotal/average	1088.0	56.3%	7361.0	46.7%	\$22.74
<u>Non-reference functions:</u>					
ILL/photocopying	189.2	9.8	1814.5	11.5	16.04
Collection maintenance	434.9	22.5	4427.1	28.1	15.11
Circulation	91.2	4.7	1001.0	6.4	14.02
Other duties	129.2	6.7	1145.4	7.3	17.35
Subtotal/average	844.5	43.7%	8388.1	53.3%	\$15.49
Total/average	1932.5	100.0%	15749.0	100.0%	\$18.88
----- Supplemental Reference Functions -----					
<u>Supplemental:</u>					
1. Question handling	117.2	41.7%	804.2	41.3%	\$22.42
2. Develop resources	71.1	25.3	547.3	28.1%	19.98
3. Education/training	16.7	6.0	116.9	6.0%	22.04
4. Management	36.9	13.1	213.7	11.0%	18.88
5. Special projects	2.2	0.8	15.0	0.8%	22.50
6. Consulting	14.6	5.2	92.7	4.8%	24.17
7. Data work	7.5	2.7	48.0	2.5%	24.13
8. ILL reference	6.2	2.2	42.9	2.2%	22.25
9. Reference related	3.5	3.0	65.6	3.4%	19.96
Total/average	280.9	100.0%	1946.4	100.0%	\$22.20

Table NJL1-3: Summary Labor Budget, NPL
(\$1000e)

Category	Question handling (1)	Other ref (2)	ILL/ photo (3)	Collect. maint. (4)	Circ/ inhouse (5)	Other prgrms (6)	Public space (7)	Total (8)	Percent shares
Surveyed staff (51-57)	584.0	524.1	189.2	434.9	91.2	129.2		1932.5	29.5%
Graphics staff (33)				37.2		37.2		74.3	1.1%
Collection staff (51-54, 58)				985.4				985.4	15.0%
Circulation staff (55)					257.7			257.7	3.9%
Other staff (71-85)						1878.2		1878.2	28.7%
Physical direct (41-43)			5.4	473.9	20.3	26.4	70.9	596.6	9.1%
Subtotal, direct	584.0	524.1	194.6	1931.3	369.3	2070.9	70.9	5725.0	87.3%
Percent shares, subtotal	9.9%	9.2%	3.4%	33.7%	6.5%	36.2%	1.2%	100.0%	
Physical overhead (41-43)	16.4	15.2	5.7	56.1	10.7	60.1	2.1	166.2	2.5%
Overhead (11-32)	65.3	60.7	22.5	223.7	42.8	239.9	8.2	663.1	10.2%
Subtotal, indirect	81.7	75.9	28.2	279.8	53.5	300.0	10.3	829.3	12.7%
Total	665.7	600.0	222.8	2211.0	422.8	2370.9	81.1	6554.3	100.0%
Percent shares	9.9%	9.2%	3.4%	33.7%	6.5%	36.2%	1.2%	100.0%	

Notes:

The numbers in the row headings are the unit numbers from the Mod 5 budget.

Table NJL1-4: Summary Materials and Services, NPL
(\$1000e)

Category	Question handling (1)	Other ref (2)	ILL/ photo (3)	Collect. maint. (4)	Circ/ inhouse (5)	Other prgrms (6)	Public space (7)	Total (8)	Percent shares
Acquisitions	0.0	0.0	0.0	861.0	0.0	304.0	0.0	965.0	42.7%
Other direct	0.0	0.0	3.0	533.5	11.4	179.5	39.8	767.3	33.9%
Indirect	52.1	48.4	18.0	178.4	34.1	191.3	6.5	528.7	23.4%
Total	52.1	48.4	21.0	1372.9	45.5	674.8	46.4	2261.1	100.0%
Percent shares	2.3%	2.1%	0.9%	60.7%	2.0%	29.8%	2.1%	100.0%	

Table NJL1-5: Summary Imputed Rent Costs, NPL
(\$1000s)

Category	Question handling (1)	Other ref (2)	ILL/ photo (3)	Collect. maint. (4)	Circ/ inhouse (5)	Other prgrms (6)	Public space (7)	Total (8)	Percent shares
Space, direct			12.2	886.7	48.0	54.7	160.3	1159.9	78.7%
Space, indirect	31.0	26.8	10.7	106.1	20.3	113.8	3.9	314.5	21.3%
Total rent	31.0	26.8	22.9	992.8	68.3	168.4	164.2	1474.4	100.0%
Percent shares	2.1%	2.0%	1.6%	67.3%	4.5%	11.4%	11.1%	100.0%	

Table NJL1-6: Program Budget, NPL
(\$1000s)

Category	Question handling (1)	Other ref (2)	ILL/ photo (3)	Collect. maint. (4)	Circ/ inhouse (5)	Other prgrms (6)	Public space (7)	Total (8)	Percent shares
Surveyed staff	564.0	524.1	189.2	434.9	91.2	129.2	0.0	1932.5	18.8%
Other labor	81.7	75.9	33.6	1776.2	331.6	2241.7	81.1	4621.8	44.9%
Total Labor	645.7	600.0	222.8	2211.0	422.8	2370.9	81.1	6554.3	63.7%
Materials/svcs	52.1	48.4	21.0	1372.9	45.5	674.8	46.4	2261.1	22.0%
Subtotal	697.8	648.4	243.8	3583.9	468.3	3045.7	127.5	6815.3	65.7%
Imputed rent	31.0	26.8	22.9	992.8	68.3	168.4	164.2	1474.4	14.3%
Total	728.7	675.2	266.7	4576.7	534.6	3214.1	291.7	10289.7	100.0%
Percent shares	7.1%	6.6%	2.6%	44.5%	5.2%	31.2%	2.8%	100.0%	

Table NJL2-1: Line Item Budget, NJSL
(\$1000s, FY 1987)

Code	Category	Funding Source:			Total 220	State Aid 150	Other	Total
		State 100	Federal 220/I	Federal 220/III				
12	Salaries	2554	880	96	758	0	0	3310
19	Benefits	0	147	17	184	0	0	184
	Total personnel	2554	807	113	920	0	0	3474
21-22	Materials	71	35	1	38	0	0	107
23	Acquisitions	458	10	0	10	73	0	541
	Subtotal	529	45	1	48	73	0	648
30-39	Services (not 34)	285	44	0	44	87	0	328
34	Info Processing (OCLC)	120	0	0	0	84	0	204
	Subtotal	405	44	0	44	151	0	800
40-45	Maintenance	31	0	0	0	0	0	31
50, 58	Indirect costs	0	81	24	105	0	0	105
	Miscellaneous	0	0	0	0	0	30	30
	Total operating	3519	977	138	1115	224	30	4888
	Capital improvements:	0	0	0	0	0	0	0
50	Computer system	152	0	0	0	0	0	152
71-77	Equipment	19	9	0	9	18	175	221
80-83	Grants	0	0	229	229	13358	0	13585
80	Programmatic grant	0	0	891	891	0	0	891
80	LSCA Title II	0	0	895	895	0	0	895
	Totals	3890	988	1953	2939	13598	205	20432

Source: "Minor Object Detail by Program Class, FY 1987," dated 1/15/88.

Notes:

The various expenditure and source codes are from the budget.

The category "benefits" (code 19) includes only benefits paid for by federally funded programs. Benefits paid to state funded workers are not included in the library budget. They are paid by the State.

The "other" column includes codes 202, 311, 400, 401, and 590.

The allocation of state aid by line items is an estimate. It represents a special allocation for FY 1987.

Table NJL2-2: Time and Cost Allocation of Surveyed Staff, BL&R

	Total dollars (\$1000s)	Percent shares: dollars	Total days	Percent shares: days	Cost per hour
----- All Activities -----					
<u>Reference function:</u>					
1. Question handling	320.7	23.3%	1952.5	17.5%	\$25.27
2. Develop resources	137.6	10.0	955.7	8.6	22.15
3. Education/training	40.8	3.0	217.0	1.9	28.90
4. Management	90.2	6.6	445.8	4.0	31.13
5. Special projects	20.8	1.5	162.1	1.5	19.76
6. Consulting	27.8	2.0	153.5	1.4	27.85
7. Data work	11.2	0.8	68.3	0.6	25.29
8. ILL reference	6.4	0.5	48.7	0.4	20.27
9. Reference related	36.3	2.6	352.5	3.2	15.83
Subtotal/average	691.8	50.3%	4356.0	39.0%	\$24.43
<u>Non-reference functions:</u>					
ILL/photocopying	117.3	8.5	1216.6	10.9	14.84
Collection maintenance	191.3	13.9	2296.3	20.6	12.82
Circulation	62.2	4.5	714.4	6.4	13.41
Other duties	312.3	22.7	2582.0	23.1	18.60
Subtotal/average	683.1	49.7%	6809.3	61.0%	\$15.43
Total/average	1374.9	100.0%	11165.3	100.0%	\$18.94
----- Supplemental Reference Functions -----					
<u>Supplemental:</u>					
1. Question handling	37.7	34.6%	227.6	32.3%	\$25.45
2. Develop resources	24.5	22.5	206.6	29.3	18.25
3. Education/training	2.2	2.0	11.8	1.7	28.23
4. Management	16.9	15.5	73.3	10.4	35.40
5. Special projects	0.2	0.2	1.6	0.2	16.87
6. Consulting	18.1	16.7	103.2	14.6	27.01
7. Data work	3.8	3.4	25.3	3.6	22.77
8. ILL reference	1.0	0.9	8.1	1.2	18.08
9. Reference related	4.6	4.2	46.8	6.6	15.11
Total/average	108.8	100.0%	704.3	100.0%	\$23.76

Table NJL2-3: Summary Labor Budget, NJSL
(\$1000s)

Category	Question handling (1)	Other ref (2)	ILL/ photo (3)	Collect. maint. (4)	Circ/ inhouse (5)	Other prgrms (6)	Public space (7)	Total (8)	Percent share
Surveyed staff	320.7	371.1	117.3	191.3	62.2	312.3	0.0	1374.9	33.8%
Tech services	0.0	0.0	0.0	500.2	0.0	0.0	0.0	500.2	12.3%
Other + misc.	0.0	0.0	82.8	0.0	0.0	1521.4	0.0	1604.2	39.4%
Subtotal, direct	320.7	371.1	200.2	691.5	62.2	1833.6	0.0	3479.3	85.5%
Subtotal, indirect	54.4	62.9	33.9	117.3	10.6	311.0	0.0	590.1	14.5%
Total Labor	375.1	434.0	234.1	808.8	72.8	2144.6	0.0	4069.4	100.0%
Percent share	9.2%	10.7%	5.8%	19.9%	1.8%	52.7%	0.0%	100.0%	

Notes:

The category of indirect labor includes only administrative labor.

Table NJL2-4: Summary Materials and Services, NJSL
(\$1000s)

Category	Question handling (1)	Other ref (2)	ILL/ Photo (3)	Collect. maint. (4)	Circ/ inhouse (5)	Other prgrms (6)	Public space (7)	Total (8)	Percent share
Acquisitions	0.0	0.0	0.0	506.0	0.0	35.0	0.0	541.0	38.3%
Other direct	0.0	0.0	10.0	185.0	0.0	29.0	0.0	204.0	14.4%
Indirect	81.7	71.4	38.5	133.0	12.0	352.6	0.0	689.0	47.3%
Total	81.7	71.4	48.5	804.0	12.0	416.6	0.0	1414.0	100.0%
Percent share	4.4%	5.0%	3.4%	58.9%	0.8%	29.5%	0.0%	100.0%	

Table NJL2-5: Summary Imputed Rent Costs, NJSL
(\$1000s)

Category	Question handling (1)	Other ref (2)	ILL/ Photo (3)	Collect. maint. (4)	Circ/ inhouse (5)	Other prgrms (6)	Public space (7)	Total (8)	Percent shares
Specs, direct	1.5	1.5	22.3	489.5	0.0	164.1	89.4	748.2	81.7%
Specs, indirect	15.4	17.8	9.8	33.2	3.0	86.1	0.0	167.1	18.3%
Total	16.9	19.3	31.9	502.7	3.0	252.2	89.4	915.3	100.0%
Percent shares	1.8%	2.1%	3.5%	54.9%	0.3%	27.6%	9.8%	100.0%	

Table NJL2-6: Program Budget, NJSL
(\$1000s)

Category	Question handling (1)	Other ref (2)	ILL/ Photo (3)	Collect. maint. (4)	Circ/ inhouse (5)	Other prgrms (6)	Public space (7)	Total (8)	Percent shares
Surveyed staff	320.7	371.1	117.3	191.3	82.2	312.3	0.0	1374.9	21.5%
Other labor	54.4	82.8	118.8	817.5	10.8	1832.3	0.0	2894.5	42.1%
Total Labor	375.1	434.0	234.1	808.8	72.8	2144.3	0.0	4069.4	63.6%
Materials and svcs	61.7	71.4	48.5	804.0	12.0	416.4	0.0	1414.0	22.1%
Subtotal	436.8	505.4	282.6	1612.7	84.8	2561.2	0.0	5483.4	85.7%
Imputed rent	16.9	19.3	31.9	502.7	3.0	252.2	89.4	915.3	14.3%
Total	453.6	524.7	314.5	2115.5	87.8	2813.3	89.4	6398.7	100.0%
Percent shares	7.1%	8.2%	4.9%	33.1%	1.4%	44.0%	1.4%	100.0%	

7. CREATING PROGRAM BUDGETS FOR NPL CENTRAL AND THE BL&R

The program budgets created earlier for NPL and the NJSL capture all of the costs appearing in their respective line item budgets (plus additional imputed costs). Our objective in this chapter is to create program budgets which capture only the costs associated with providing both regular and supplemental question handling and ILL/photocopying services. This chapter also describes our approach to allocating the costs of Collection Maintenance and Other Reference to the question handling, ILL/photocopying, and Circulation/In-House Use functions. In the next chapter, we then proceed to calculate both the marginal and average costs of providing regular and supplemental question handling and ILL/photocopying.

Our first step is to focus attention on the units which provide question handling and ILL/photocopying services in two libraries: The Central Library of Newark Public Library (NPL Central) and the Bureau of Law and Reference at the New Jersey State Library (BL&R). We next define output measures for the various cost centers in these two units which use Collection Maintenance and Other Reference services. These output measures are then used to estimate how much these units draw on the services of the collection, and provide the basis for allocating the costs of Collection Maintenance and Other Reference as intermediate inputs used by the remaining cost centers. The final result is an allocated program budget for each unit which isolates all the costs of providing question handling and ILL/photocopying services.

7.1 Other Programs and Public Space

When we created program budgets for NPL and NJSL, we assigned all programs not directly related to providing question handling and ILL/photocopying services to the Other Programs cost center. Minus the functions performed by Other Programs, the functions reflected in the two program budgets correspond closely to the functions performed by two existing organizational entities in NPL and NJSL: NPL Central and the Bureau of Law and Reference (BL&R).⁵⁹

In addition to excluding Other Programs from the program budgets for NPL Central and the BL&R, we also exclude the Public Space cost center because providing study hall space, shelter, and a reading room for the public do not support either question handling or ILL/photocopying services. In removing these costs from the budgets for NPL Central and the BL&R, we are implicitly assuming that the public space function is provided by NPL and NJSL.

⁵⁹The correspondence is not exact, and we will note a few minor accounting problems as we proceed.

Newark Public Library

NPL's overall program budget reflects the many functions of a large urban public library system. It has a central library in downtown Newark with large general, special, and reference collections. The central library is staffed by many experienced librarians, some of whom have additional subject expertise. It also has a Business Library located in the commercial district near the main library building, which we include as part of NPL Central in the program budget.

NPL also has eleven branch libraries located in neighborhoods throughout the city. The branches contain smaller collections with more popular materials. The branches have fewer professional and clerical staff to manage the collections. In general, professional staff at the branches are generalists rather than subject specialists. In addition, NPL reaches out to the community through extension services which include providing bookmobile service and library support to schools.

While the branch libraries and extension services turn to NPL Central for back-up support as needed, NPL Central does not draw on the resources of the branches when it provides question handling and ILL/photocopying services. Consequently, all costs of the branch and extension operations appear in the Other Programs cost center of NPL's operating budget, and are excluded from NPL Central's program budget.

New Jersey State Library

We approach NJSL's program budget in a similar fashion. NJSL houses three very different services: the Library Development Bureau (LDB), the Library for the Blind and Handicapped, and the Bureau of Law and Reference (BL&R). The costs of operating the LDB and the Library for the Blind and Handicapped appear in NJSL's program budget under the Other Programs cost center and are not part of the BL&R program budget.⁶⁰ NJSL also runs the Access Center, an expeditor for libraries seeking citation and location information and access to the OCLC ILL subsystem. This unit is also grouped under Other Programs.

The BL&R is, in fact, composed of two administrative units in NJSL: the law unit and the governmental reference unit. The law unit belies its name. It includes not only the law collection, but also the New Jersey collection and the government documents collection. The governmental reference unit manages a general reference and circulating collection, as well as a small collection on foundations.⁶¹ The name "governmental reference" reflects the target audience which the unit serves, not the scope of its collection. These two units provide the

⁶⁰As noted in Chapter 6, since NJSL does not have a program budget or separate unit budgets, it took considerable work with NJSL financial staff to separate out the costs of operating these two programs from the costs of operating the BL&R.

⁶¹This collection is provided by the Foundation Center in New York City, an organization which collects and publishes information on foundations.

question handling and ILL/photocopying services which are the focus of this study.

The LDB is the administrative structure of NJSL through which a number of state and federal library programs are operated, including the New Jersey Library Network. Headed by the New Jersey State Librarian, the LDB has a number of professionals and support staff whose time is largely dedicated to carrying out these programs.

Most of the costs of the LDB appear in the program budget for NJSL under the Other Programs cost center. Some LDB staff costs, however, are allocated to operating programs in other parts of NJSL. For example, the State Librarian and her support staff, as well as her financial and administrative staff, provide oversight and technical assistance to other programs at NJSL. Therefore portions of their loaded salaries are included in the row heading "other labor" and have been allocated to the other cost centers (as described in the previous chapter).

All costs of operating the Library for the Blind and Handicapped appear under the Other Programs cost center in NJSL's program budget. Its function is to distribute materials and equipment, such as Talking Books, to those citizens in New Jersey who are not able to use other materials in the Library because of physical constraints. It receives federal funds from the Division of the Blind and Physically Handicapped at the Library of Congress.

Program Budgets for NPL Central and the BL&R

Table 7-1 provides the resulting program budgets for NPL Central and the BL&R. These budgets are exactly the same as the program budgets for the parent organizations, NPL and NJSL, except that they contain only five of the original seven cost centers since Other Programs and Public Space have been excluded.

It is interesting to note the parallels and the differences between the overall composition of each of the two budgets, as well as the percentage shares allocated to each of the cost centers. For both libraries, total labor represents over half the total budget: 60.5% at NPL Central and 55.1% at BL&R. At NPL Central, however, the mix of staff involved more "other labor" costs and fewer "surveyed staff" costs (33.9% for other labor and 26.6% for surveyed staff) than at the BL&R (24.7% versus 30.5%).

Surprisingly, the imputed rent costs are almost identical. Imputed rent represents 16.8% shares of the total cost for NPL Central, compared to 16.4% at the BL&R. The costs of materials and services were slightly lower at NPL Central than at BL&R (22.7% versus 28.5%). In general, the structure of costs by line items is very similarly across the two libraries.

In comparing costs allocated to each of the five cost centers, once again the similarities are striking. The overall cost differential between cost centers ranges from the smallest amount, which is less than a 3% difference for Question Handling (10.7% for NPL Central versus 13.0% for the BL&R), to a spread of seven percentage points, with NPL Central spending 67.5% for Collection Maintenance compared to BL&R at 60.5%. The fact that NPL Central spends more on this cost

Table 7-1: Program Budgets for NPL Central and The BL&R
(\$1000s)

Category	Question handling (1)	Other ref (2)	ILL/ photo (3)	Collect. maint. (4)	Circ/ inhouse (5)	Total (6)	Percent shares
<u>NPL Central</u>							
Surveyed staff	564.0	524.1	189.2	434.9	91.2	1803.3	26.6%
Other labor	81.7	75.9	33.6	1776.2	331.6	2298.9	33.9%
Total Labor	645.7	600.0	222.8	2211.0	422.8	4102.2	60.5%
Materials & services	52.1	48.4	21.0	1372.9	45.5	1539.9	22.7%
Imputed rent	31.0	28.8	22.9	992.8	66.3	1141.7	16.8%
Total	728.7	677.2	266.7	4576.7	534.6	6783.9	100.0%
Percent shares	10.7%	10.0%	3.9%	67.5%	7.9%	100.0%	
<u>Bureau of Law and Reference (BL&R)</u>							
Surveyed staff	320.7	371.1	117.3	191.3	62.2	1062.6	30.4%
Other labor	54.4	62.9	116.8	617.5	10.6	862.2	24.7%
Total Labor	375.1	434.0	234.1	808.8	72.8	1924.8	55.1%
Materials & services	61.7	71.4	48.5	804.0	12.0	997.5	28.5%
Imputed rent	16.9	19.3	31.9	502.7	3.0	573.7	16.4%
Total	453.6	524.7	314.5	2115.5	87.8	3496.0	100.0%
Percent shares	13.0%	15.0%	9.0%	60.5%	2.5%	100.0%	

center may be a function of heavy use of a collection used by the general public, which necessitates buying multiple copies of best sellers as well as purchasing replacements and making repairs to existing book stock.

The fact that NPL Central is a public library is also reflected in the fact that 7.9% of its total budget is allocated to the Circulation/In-House cost center, compared to 2.5% for the BL&R. The difference is highlighted by the amount of physical space and number of staff manning the circulation desk. At NPL, the desk occupies a good deal of space, has several staff manning the operation, and involves an electronic security system as well as a security guard. At the BL&R, the circulation desk is a very modest operation, staffed by one support staff member and one guard who makes casual inspections.

In the case of the remaining cost centers, NPL Central spends roughly 5% less than the BL&R on Other Reference (10.0% versus 15.0%), and on ILL/Photocopying (3.9% versus 9.0%). The difference in costs is probably explained by the fact that the BL&R produces many annotated lists, bibliographies, and other finding tools internally which are designed for use by both the public and the professional staff. The Law Library staff is particularly involved in developing specialized resources. These same staff also place tremendous emphasis on providing photocopies of materials. Their philosophical commitment is translated into providing a great deal of document delivery, which, in turn, probably explains why the BL&R spends more of its resources on ILL/Photocopying than NPL Central.

Two of the five cost centers, Other Reference and Collection Maintenance, provide intermediate inputs to the other three cost centers: Question Handling, ILL/Photocopying, and Circulation/In-House Use. To arrive at the total cost of providing question handling and ILL/photocopying services, we will turn Other Reference and Collection Maintenance from columns into rows, thereby allocating their costs to the remaining three cost centers. This step requires estimating how much each of the three centers draws on the services provided by Collection Maintenance and Other Reference centers. This process is described in the next two sections.

7.2 Inputs and Outputs of Cost Centers

The Collection Maintenance cost center maintains the library's collection. From Table 7-1, it represents 60-68% of the total budget of the two units and is by far the largest cost center in each of the two libraries. Our approach is to allocate these costs to the other cost centers in proportion to their use of the library's collection. We must then estimate how much each of these centers draws on the library collection as an intermediate input in providing its services.

There are two possible ways to estimate how much each cost center draws on the collection. One is by direct measurement. Detailed surveys could be designed and administered to measure in what ways, and how much, the staff at each cost center uses the library collection. While perhaps desirable, such an approach would be expensive. Instead, we use a second approach based on estimating, for each cost center, output measures and average input requirements from the library collection.

Our approach requires four steps. First, we must define a common unit of "service" provided by the library collection. Second, we must define output measures for each cost center that draws on the collection. Third, we must determine how many units of collection service are needed to provide a unit of output for each of the cost centers. Finally, given estimates of the total output for each cost center, we can estimate how many "collection service units" are required by each cost center as an intermediate input. The implementation of these steps is described below.

Units of Collection Service and Cost Center Outputs

Our basic unit of "collection service" is one item consulted. We will call this a unit of "collection use" or "use equivalent." A "circulation," or one item

charged out to a patron, is defined as one use, so we are effectively defining use in terms of circulation equivalents. In-house use of the collection by patrons and library staff will also be measured in use equivalents.

The Circulation/In-House Use cost center provides two kinds of output. First, it charges out items to patrons. Second, it allows patrons access to the collection for in-house use. Conceptually, both these uses can be measured directly in terms of use equivalents. The underlying assumption is that an in-house use is equivalent to a circulation in terms of use of the collection. This is a substantive assumption. One might argue, for example, that a circulation ties up an item for weeks, while an in-house use only ties it up for a day or less. One could define a use equivalent measure that took into account the time an item is tied up. For our purposes, such a refinement seemed unnecessary. However, in-house use represents a special problem since neither library collects data on in-house use of the collection by patrons. Instead, we have been forced to use data on number of visitors to measure in-house use, and then estimate separately how much each visitor uses the collection.⁶²

The Question Handling cost center provides reference services. We measure the output of this center by the number of questions handled. We discussed earlier why we use "questions handled" rather than "questions answered" for the cost finding exercise.⁶³

The Other Reference cost center involves a number of activities such as producing bibliographies, creating union lists, and developing specialized indexes and files. It is impossible to define a single output measure for all these activities. The same staff, however, who perform question handling also engage in other reference activities.

We can define a unit of output common to these staff, representing a certain amount of their time. We estimated the ratio of staff time per question for question handling (based on surveyed labor time and data on the total regular and supplemental questions handled). We then estimated the "question handling equivalent" for other reference activities by dividing the total staff time devoted to other reference by this ratio of time spent per question.

Assume, for example, that a staff member at the BL&R spends an average of two hours per day on other reference activities and handles four questions per day.⁶⁴ The same librarian handles four questions per day, on average, in performing the question handling function. Therefore, that staff member's time spent on other

⁶²In-house use by staff is estimated separately.

⁶³See Chapter 5 on the Cost Finding model. In short, handling questions requires the use of resources, whether or not the question is successfully answered.

⁶⁴In fact, we omitted some of the other reference functions (management, education and training, consulting, and data work), since they appear not to involve use of the collection. See Tables NJL1-2 and NJL2-2 for the time allocations.

reference activities is equivalent to handling eight questions. By measuring the outputs of the Question Handling and Other Reference cost centers using the same units, we are, in effect, measuring every reference-related activity accomplished by reference librarians and associated staff in terms of question handling units.⁶⁵

The ILL/photocopying cost center provides two services with two associated output measures. We measure ILL activity by the number of ILL requests handled by the cost center.⁶⁶ Photocopying is measured by the number of items photocopied, as reported by each library.

Demand for Collection Service by Cost Centers

NPL Central and the BL&R were able to generate a variety of annual data that correspond to the output measures for the various cost centers defined above. These include: the number of overall questions handled (including both regular and supplemental), the number of ILL requests handled, the number of items photocopied, total circulation figures, and the number of visitors.⁶⁷ To determine each cost center's demand for collection service, we must determine the number of "collection use equivalents" required per unit of its output. This "conversion factor" can be used to convert total output measures for each cost center into demands for use of the collection.

The Circulation/In-House Use cost center, by definition, demands collection use equivalents equal to the volume of charged out items, or circulation as conventionally measured. In addition, we have added an estimate of in-house use to charged-out circulation to account for the use of the collection by patrons in the library. Lacking any data on in-house use of the collection at either library, we were forced to use available data on the number of visitors to determine a ratio.

As Rubin says in a book on the subject of in-house circulation, "one of the difficulties of measuring in-house use is defining precisely what constitutes use."⁶⁸ Rubin made "table counts" of items left on tables, which is the most

⁶⁵Non-reference activities are allocated according to the shares reported by surveyed staff.

⁶⁶We use ILL requests rather than items sent for the same reason that we use questions handled rather than questions answered. Processing requests requires resources.

⁶⁷For a discussion of the sources and reliability of these data, the reader may refer to chapter 4 on data gathering. Some of the data were generated specially for this study, and staff at both libraries were helpful in refining the measures.

⁶⁸Richard Rubin, In-House Use of Materials in Public Libraries, Monograph 18, Graduate School of Library and Information Science (Urbana-Champaign: University of Illinois, 1986), 18. Other researchers have found ratios of in-library use to circulation use in academic libraries ranging from 0.4 to 4.7 for

frequently used data collection approach. He also collected data by using unobtrusive observation of patrons and by conducting interviews. In counting items used in-house, he excluded items used by the reference staff or items being checked back in after having been circulated. For the purposes of his observations and interviews, he defined "use" in a conservative manner in order not to overstate use of the collection. For Rubin, use "involved at the very least the 'reading or skimming of pages.'"⁶⁹

Of the few studies conducted on in-house use, most express in-house use as a ratio to charged-out circulation. Rubin looked at the correlation between in-house use and the following variables: circulation, visitors, acquisitions budget, and FTEs of public service staff. He concluded that the ability to use external circulation as a predictor of in-house use is very limited, although he reports that using this ratio and his observation and interview methodology:

... the ratio of library materials used in the library to materials checked out was approximately 1.2 to 1. This finding is at substantial variance with the 0.5 to 1 ratio reported in the library literature using the table count method. As such it is suggestive of a serious under-representation of the use of materials in the library.⁷⁰

Based on his research findings, Rubin concluded that "if a library wants to use a variable to predict in-house use, visitor count appears to be the best, but the data suggest that in-house use should be measured directly, rather than through other variables."⁷¹

In calculating in-house use by patrons, we use the visitor count in to construct a ratio. Based on conversations with staff at each of the two libraries, we make the assumption that every other visitor will consult one item in-house, or 0.5 in-house use equivalents for every visitor. Taking both output measures into account, the total collection use equivalents required by the Circulation/In-House Use cost center equals total circulation plus 0.5 times the number of visitors.

This ratio of in-house use of the collection represents a conservative estimate. It is based on an "educated guess" on the part of staff at the two libraries, and is probably an underestimate. Using the ratio of 0.5 in-house uses per visitor yields ratios of in-house use to total circulation of 0.74 to one at NPL Central and 0.69 to one at BL&R (see Table 7-2 below). These are somewhat lower

books and 1.6 to 6.4 for books and periodicals combined. See Stockard, Griffin, and Coblin article in Ching-Chih Chen's book on Quantitative Measurement and Dynamic Library Service as well as other references listed in the bibliography at the end of this report on in-house use.

⁶⁹Ibid., 19.

⁷⁰Ibid., 64.

⁷¹Ibid., 65.

than Rubin's estimates. In addition, Rubin's regression analysis yields estimates of in-house per visitor that range from 0.61 uses of the collection in-house for every visitor, based on unobtrusive observations, and 0.98, based on interviewed responses to his questionnaire.⁷² We decided to stick with our conservative estimate in order to take into account the view, noted earlier, that an in-house use of an item represents less of a drain on the collection than a charged-out circulation.

For the Question Handling cost center, we assume that each question handled requires that reference staff, on average, consult two items in the collection, demanding two collection use equivalents.⁷³ As with the estimated ratio for in-house use, this ratio represents a conservative "educated guess" on the part of library staff.⁷⁴ Again, we decided on a conservative estimate partly to account for the qualitative difference in collection use between in-house use by reference staff and a checked-out item.⁷⁵ The total use equivalents required by the Question Handling cost center therefore equals two times the total number of questions handled.

As discussed above, the output of the Other Reference cost center is measured in "question handling equivalents." We assume that these activities require the same number of use equivalents per question handling equivalent as does question handling. The total use equivalents required by the Other Reference cost center therefore equals two times the number of question handling equivalents provided by the cost center.

For the ILL/Photocopying cost center, we assume that each ILL request or photocopy item requires a single collection use equivalent. An ILL request is assumed to be effectively equivalent to a checked-out item. A photocopied item is also assumed to require a single use of the collection. This cost center therefore requires collection use equivalents equal to the sum of ILL requests and items photocopied.

⁷²Ibid, 121.

⁷³For supplemental questions, which we discuss in the next section, we assume four use equivalents per question handled, or twice the average requirement. This assumption affects the cost differential between supplemental and average question handling.

⁷⁴Weech and Goldhor (1984) report that the number of sources used per question handled, ranged from one to 16, but that the majority (54%) of questions required one source, 23% required two, 10% required three, and 13% required four or more. In his study, Rubin (1986) specifically excluded consideration of in-house use by library staff.

⁷⁵Janet Tuerff of the BL&R and Emily Matonti of NPL Central feel that we may have understated the use of the collection maintenance function in question handling. They suggest that a conversion factor of three use equivalents per question handled may be more accurate. As noted, however, we have decided to take a conservative approach.

Output and Collection Use Measures

Table 7-2 provides data on output measures for each cost center in the two libraries and on their demands for collection service. Demand for collection services is expressed in use equivalents. As discussed above, we have made a number of assumptions in order to capture how the various cost centers use the library collection. We feel that, for the purpose of allocating collection maintenance costs, these assumptions are workable and that the results are robust. However, we would prefer to have used direct estimates of collection use by staff and in-house visitors. Such data would have allowed us to refine considerably our estimated "conversion factors" which relate collection use to outputs from the cost centers.

Describing demand by each cost center for use of the collection in terms of percentage shares highlights several points. First, note that for both libraries Question Handling represents approximately 40% of the total use of the collection (40.4% for NPL Central and 39.8% for the BL&R). When Other Reference demand for collection use is added (18.8% for NPL Central and 22.4% for the BL&R), the total demand on the collection from the two cost centers combined represents 59.2% for NPL Central and 62.2% for the BL&R.

The demand on the collection to handle incoming ILL requests and to make photocopies (whether in lieu of loaning an item, or in response to a direct request for a photocopy) is much smaller at NPL Central than at the BL&R (1.6% versus 12.9%). Given the characteristics and mission of the respective libraries this result is not surprising.

Finally, it is important to note that circulation (i.e., items checked out) accounts for only a relatively small share of the total demand for collection service units. Checked out circulation accounts for 22.5% of total use of the collection at NPL Central and 14.8% at the BL&R. These results underscore the fact that standard circulation statistics badly understate the total use of a library collection by patrons and staff, even in a public library where circulation tends to be high. In the two libraries, in-house use by reference staff account for the largest share of total use: 59.2% at NPL Central and 62.2% at the BL&R. Adding in-house use by patrons, it can be seen that total in-house use is very large: 75.9% at NPL Central and 72.4% at BL&R.

We have a few caveats about our assumptions. The first relates to the two-step procedure by which we estimated collection use by reference staff in pursuing other reference (non-question-handling) activities. These estimates would benefit greatly from detailed data collection to support empirical analysis of how such activities draw on the collection. Such refinement would clearly be helpful, although difficult and costly to achieve. It would involve developing a survey instrument which would track the use of the collection in performing the other reference functions, particularly in "developing specialized resources."

Table 7-2: Output Measures and Collection Use

<u>Category</u>	<u>Output measure</u>	<u>Convrsn factor</u>	<u>Use eqvlt</u>	<u>Percent share</u>
<u>NPL Central</u>				
Question handling	222,895	2.00	445,790	38.8%
Other reference	126,433	2.00	252,867	22.0
Total reference	349,328	2.00	698,657	60.8
ILL requests	10,478	1.00	10,478	0.9
Photocopies (items)	7,643	1.00	7,643	0.7
Sum, ILL/photocopy	18,121	1.00	18,121	1.6
Circulation	248,255	1.00	248,255	21.6
Number of visitors	368,851	0.50	184,426	16.0
Circulation/inhouse			432,681	37.6
Total			1,149,458	100.0%
<u>Bureau of Law and Reference (BL&R)</u>				
Question handling	53,890	2.00	107,780	36.7%
Other reference	41,925	2.00	83,850	28.5
Total reference	95,815	2.00	191,630	65.2
ILL requests	14,225	1.00	14,225	4.8
Photocopies (items)	20,639	1.00	20,639	7.0
Sum, ILL/photocopy	34,864	1.00	34,864	11.8
Circulation	39,952	1.00	39,952	13.6
Number of visitors	55,301	0.50	27,651	9.4
Circulation/inhouse			67,603	23.0
Total			294,097	100.0%

Notes:

"Use eqvlt" (use equivalent) is a measure of collection use. A unit of collection use is defined as one item consulted, either in or out of the library.

"Convrsn factor" is the conversion factor which measures the number of collection use equivalents required per unit of output.

"Question handling" includes both regular and supplemental questions handled by the two libraries.

"Other reference" refers to reference activities exclusive of question handling. The output measure is in units of question handling equivalents (see text for explanation).

"ILL requests" refers only to incoming requests.

"Circulation" refers to number of charged-out items.

"Circulation/inhouse" is the sum of charged-out and in-house circulation by patrons.

In our case, however, the lack of precision with regard to measuring inputs into other reference activities is less important since, in the next section, we will proceed to allocate nearly all of the Other Reference center costs to the Question Handling cost center. While these activities are interesting in their own right, for our purposes they are viewed as largely supporting the question handling function and we therefore believe that our assumptions are workable given that perspective.

The second caution relates to the assumptions we make regarding in-house use equivalents. We have touched on some of the problems with past research in this area. Given the lack of any other measures, we did the best we could by using the visitor count figures conservatively. We join Rubin in voicing a concern regarding the need for more and better data collection on in-house use.

7.3 Allocating Intermediate Costs

As we stated earlier, the outputs of two of the five remaining cost centers provide intermediate inputs to the remaining cost centers. They are Collection Maintenance and Other Reference. Now that we have a uniform measure to capture the use of the collection by each of the cost centers, we are able to allocate the collection maintenance costs to each. The allocation of Other Reference costs is done in a separate step. The details of the allocation, which involve converting columns to rows, are shown in Tables 7-3 and 7-4.

Allocating Collection Maintenance Costs

At this point, we can return to Table 7-2 above and allocate the costs of Collection Maintenance by applying the shares of use equivalents. As we pointed out in the discussion of Table 7-1 above, Collection Maintenance represents 67.5% of the total program budget at NPL Central (\$4,576,700) and 60.5% of the total program budget at the BL&R (\$2,115,500), so we are spreading a major cost item. The results are given in Table 7-3. The "collection maintenance" row describes how much each of the four remaining cost centers spends to support its use of the collection.

Table 7-3 shows a markedly changed structure of costs across the four cost centers. The lion's share of collection maintenance costs go to Question Handling and Other Reference. For example, the Question Handling cost center increases its share of total costs from 10.7% and 13.0% at NPL Central and the BL&R to 38.0% and 37.1%, respectively. The largest relative impact, however, is on the Circulation/In-House Use cost center, which have smaller initial budgets in the two libraries. The latter increases its share of the total budget from 7.9% and 2.5% at NPL Central and the BL&R to 34.3% and 17.6%, respectively.

Table 7-3: Allocated Collection Maintenance Costs
(\$1000s)

Category	Question handling (1)	Other ref (2)	ILL/ photo (3)	Circ/ inhouse (4)	Total (5)	Percent shares
<u>NPL Central</u>						
Surveyed staff	564.0	524.1	189.2	91.2	1368.4	20.2%
Other labor	81.7	75.9	33.6	331.6	522.8	7.7%
Total labor	645.7	600.0	222.8	422.8	1891.2	27.9%
Materials and services	52.1	48.4	21.0	45.5	167.0	2.5%
Collection maintenance	1774.9	1006.8	72.2	1722.8	4576.7	67.5%
Subtotal	1827.0	1055.2	93.2	1768.3	4743.7	69.9%
Imputed rent	31.0	28.8	22.9	66.3	149.0	2.2%
Total	2503.7	1684.0	338.9	2257.4	6783.9	100.0%
Percent shares	36.9%	24.8%	5.0%	33.3%	100.0%	
<u>Bureau of Law and Reference (BL&R)</u>						
Surveyed staff	320.7	371.1	117.3	62.2	871.4	24.9%
Other labor	54.4	62.9	116.8	10.6	244.7	7.0%
Total Labor	375.1	434.0	234.1	72.8	1116.0	31.9%
Materials and services	61.6	71.4	48.5	12.0	193.5	5.5%
Collection maintenance	775.3	603.1	250.8	486.3	2115.5	60.5%
Subtotal	836.9	674.5	299.3	498.2	2308.9	66.0%
Imputed rent	16.9	19.3	31.9	3.0	71.0	2.0%
Total	1228.9	1127.8	565.3	574.0	3496.0	100.0%
Percent shares	35.2%	32.2%	16.2%	16.4%	100.0%	

Table 7-4: Fully Allocated Program Budgets
(\$1000s)

Category	Question handling (1)	ILL/ photo (2)	Circ/ inhouse (3)	Total (4)	Percent shares
<u>NPL Central</u>					
Surveyed staff	564.0	189.2	91.2	844.4	12.7%
Other labor	81.7	33.6	331.6	446.9	6.7%
Total labor	645.7	222.8	422.8	1291.2	19.5%
Materials and services	52.1	21.0	45.5	118.6	1.8%
Collection maintenance	1774.9	72.2	1722.7	3569.8	54.0%
Other reference	1347.2	0.0	168.4	1515.6	22.9%
Subtotal	3174.2	93.2	1936.7	5204.1	78.7%
Imputed rent	31.0	22.9	66.3	120.2	1.8%
Total	3850.9	338.9	2425.8	6615.5	100.0%
Percent shares	58.2%	5.1%	36.7%	100.0%	
<u>Bureau of Law and Reference (BL&R)</u>					
Surveyed staff	320.7	117.3	62.2	500.3	14.3%
Other labor	54.4	116.8	10.6	181.7	5.2%
Total Labor	375.1	234.1	72.8	682.0	19.5%
Materials and services	61.7	48.5	12.0	122.1	3.5%
Collection maintenance	775.3	250.8	486.3	1512.3	43.3%
Other reference	1015.0	0.0	112.8	1127.8	32.3%
Subtotal	1852.0	299.3	611.0	2762.2	79.0%
Imputed rent	16.9	31.9	3.0	51.7	1.5%
Total	2243.9	565.3	686.8	3496.0	100.0%
Percent shares	64.2%	16.2%	19.6%	100.0%	

Other Reference

The allocation of Other Reference costs to the other cost centers was done much more simply. Most of these costs clearly support the question handling function, and should therefore be assigned to the Question Handling cost center. Given the heterogeneous nature of the activities categorized under the label "other reference," we enlisted the professional judgement of the Working Group in determining how to allocate these costs to the other cost centers.

Based on the question handling model, the survey questionnaire defined eight activities which comprise "other reference." The Working Group discussed what shares of the time spent on these activities support question handling versus other cost centers. Based on their judgement, we used the following allocations. For NPL Central, 80 percent of Other Reference costs are allocated to Question Handling, 10 percent to Circulation/In-House Use, and 10 percent to Other Programs.⁷⁶ For the BL&R, 90 percent goes to question handling and 10 percent to Circulation/In-House Use. Table 7-4 presents the final, fully allocated program budgets for the two libraries. At this point, the cost finding model has been fully implemented.

Table 7-4 reveals the programmatic emphasis of the two libraries. In both libraries, about 60 percent of the total budget is allocated to question handling. It is clear that these are reference libraries. The Circulation/In-House Use cost center comes next, taking 37.4% and 20.5% of the total budgets at NPL Central and the BL&R, respectively. Not surprisingly, the public library places relatively greater emphasis on patron use of the collection. Finally, ILL/Photocopying accounts for 5.2% and 16.8% for NPL Central and the BL&R. As we have seen earlier, the BL&R places a significantly greater emphasis on document delivery services.

⁷⁶The ten percent allocated to Other Programs disappears from the program budget for NPL Central. Other Programs have already been split off from the budgets for the two libraries. The total budget for NPL Central in Table 7-4 is slightly lower than in Tables 7-1 and 7-2.

8. THE COSTS OF QUESTION HANDLING AND ILL/PHOTOCOPYING

We have now isolated all costs associated with Question Handling, Other Reference, and ILL/photocopying at both NPL Central and the BL&R. At this point, we can calculate the unit cost of providing both overall and supplemental question handling and ILL/photocopying service at each of the two libraries.⁷⁷ We discuss the cost finding results using two concepts of unit costs: marginal and average costs.⁷⁸ We define marginal cost as the fully loaded labor cost required to handle one more question, or one more ILL/photocopy request. Total labor includes both "surveyed staff" and "other labor" (see Chapter 7), and represents a variable cost. Average total cost, in contrast, is calculated by dividing the sum of total cost (e.g., the sum of all variable and fixed costs) by the total number of questions or ILL/photocopies handled. Fixed costs include the following cost categories: "materials and services," "imputed rent," "collection maintenance," and "other reference."

8.1 The Costs of Overall and Supplemental Question Handling

Table 8-1 presents output data on the volume of question handling and ILL/photocopying at the two libraries, and Table 8-2 summarizes the final results of the cost finding model. Table 8-1 indicates that NPL Central handled over four times as many questions in 1987 as did the BL&R (222,895 versus 53,890). Given the fact that NPL Central is a relatively large public library and that the BL&R is really a special library, it is not surprising that NPL handles a proportionately greater volume of questions from its public. We do not know, however, whether the characteristics of the questions are the same for the two libraries and therefore cannot comment on the nature of the questions handled.⁷⁹ In both libraries, supplemental questions represent a small proportion of total questions handled (1.8% in NPL Central and 2.4% in the BL&R).

NPL Central handled a total of 18,121 ILL/photocopy requests in 1987, or roughly half as many as the BL&R (with 34,864), despite the fact that NPL Central is a much bigger library. In calculating the cost of supplemental ILL/photocopying,

⁷⁷When we discuss the unit cost per question handled, unless the term is modified by the term "supplemental," we are reporting on the cost of overall question handling which is the combination of regular and supplemental questions. The term question handling is also used to refer to overall question handling. When we discuss supplemental questions, however, we are referring to a subset of overall questions.

⁷⁸The various cost concepts are discussed in detail in Chapter 6.

⁷⁹It may be that NPL handles more simple questions with simple answers, while the BL&R may handle a smaller number of questions but those they handle may be more complex questions requiring complex answers. If the number of questions were weighted to reflect the level of effort required, then complex questions requiring complex answers, for example, could be assigned a "simple question equivalent."

Table 8-1: Selected Output Measures

	<u>NPL Central</u>	<u>BL&R</u>
<u>Reference Questions</u>		
Total number of questions handled	222,895	53,890
Number of supplemental questions handled	3,939	1,295
Ratio of supplemental to total (%)	1.8%	2.4%
Total questions handled per hour	9.0	4.2
Supplemental questions handled per hour	0.8	0.9
<u>ILL/Photocopying Requests</u>		
Total number of requests	18,121	34,864
Number of supplemental requests	17,191	15,131
Ratio of supplemental to total (%)	94.8%	43.4%

Notes:

Number of surveyed staff hours devoted to total and supplemental question handling are taken from Tables NJL1-2 and NJL2-2. Data on total number of questions handled and ILL/photocopying requests are taken from Table 7-2. Number of supplemental questions handled come from a survey by T. LaBorie, "New Jersey State Library, Research Library Statistics, January-December 1986."

we consulted with the Working Group and concluded that the tasks and time required to handle a regular ILL/photocopy request are the same, on average, as for supplemental ILL/photocopy requests.⁶⁰ Indeed, as is evident in Table 8-1, 95% of NPL Central's ILL/photocopy requests are supplemental. For the BL&R, the ratio is 43%.⁶¹

Table 8-2 presents the cost results. Table 8-3 below summarizes the marginal and average cost results. For overall question handling in both libraries, labor costs represent 17% of the total cost per question handled. These labor costs represent the marginal cost of answering one additional question, excluding all fixed costs. They are \$2.90 per question at NPL Central and \$6.96 per question at the BL&R. The average labor cost per question handled differs so much

⁶⁰The survey data we collected from staff performing ILL and photocopying duties did not prove useful in differentiating between tasks and time invested in regular versus supplemental ILL/photocopying service.

⁶¹Members of the Working Group provided the data on the number of supplemental ILL/photocopy requests handled in 1987. A memorandum from Barbara M. Robinson to the Working Group, dated October 12, 1988, describes the data.

Table 8-2: Costs per Question Handled and ILL/Photocopying Request

Category	Overall question handling:		ILL/photocopy:		Supplemental question handling:	
	Cost	Share	Cost	Share	Cost	Share
<u>NPL Central</u>						
Surveyed staff	\$2.53	14.6%	\$10.44	55.8%	\$29.76	56.7%
Other labor	0.37	2.1	1.85	9.9	0.37	0.7
Total labor	2.90	16.8	12.29	65.7	30.13	57.4
Materials & services	0.23	1.4	1.16	6.2	0.23	0.4
Collection maintenance	7.96	46.1	3.98	21.3	15.93	30.4
Other reference	6.04	35.0	0.00	0.0	6.04	11.5
Subtotal	14.24	82.4	5.14	27.5	22.20	42.3
Imputed rent	0.14	0.8	1.27	6.8	0.14	0.3
Total costs	\$17.28	100.0%	\$18.70	100.0%	\$52.47	100.0%
<u>Bureau of Law and Reference (BL&R)</u>						
Surveyed staff	\$5.95	14.3%	\$3.37	20.8%	\$29.07	36.7%
Other labor	1.01	2.4	3.35	20.7	1.01	1.3
Total Labor	6.96	16.7	6.72	41.5	30.08	38.0
Materials & services	1.14	2.7	1.39	8.6	1.14	1.4
Collection maintenance	14.39	34.6	7.19	44.3	28.78	36.4
Other reference	18.84	45.2	0.00	0.0	18.83	23.8
Subtotal	34.37	82.5	8.58	52.9	48.75	61.6
Imputed rent	0.31	0.8	0.91	5.6	0.31	0.4
Total costs	\$41.64	100.0%	\$16.21	100.0%	\$79.14	100.0%

Notes:

See notes for Table 8-1. Cost data are from Table 7-4.

between the two libraries because staff at NPL Central handle 9.0 questions per hour while, at the BL&R, staff handle 4.2 questions per hour (see Table 8-1). The average question handled by the BL&R requires more than twice the staff time spent by NPL Central. It is important to note that, without more information about the nature of the "average" question handled by the two libraries, it is impossible to make any judgment about the relative efficiency of question handling at the two libraries.⁶²

To calculate the average, rather than the marginal, cost of overall question handling, we add all the non-labor costs to the total labor costs. The categories of non-labor costs are: materials and services; collection maintenance; other reference; and imputed rent.⁶³ The result is that the average total costs per question handled are \$17.28 at NPL Central and \$41.64 at the BL&R. The ratio of non-labor to labor costs is the same in both libraries.

Of the non-labor costs, the two significant cost categories are collection maintenance and other reference. Together they represent roughly 80% of the average total cost. Indeed, the impact of the collection maintenance cost on the total average cost of question handling is even greater than it appears. In addition to the \$7.96 and \$14.39 of collection maintenance cost which are directly allocated to total labor at NPL Central and the BL&R, collection maintenance costs also represent a significant fraction of the cost of "other reference," most of which is allocated to the average unit cost of question handling (see Table 7-3). The indirect use of collection maintenance services, which are incorporated into Other Reference, increases Question Handling's use of collection maintenance services by about half in both libraries. These two costs are much greater at the BL&R -- more than double per question handled. One might expect such a differential when comparing a special library, such as the BL&R, to a public library, such as NPL Central.

Table 8-1 also reports the estimated total number of supplemental questions handled by NPL Central and the BL&R in 1987 as 3,939 and 1,295 respectively. Table 8-2 reports the costs of supplemental question handling. We made two major assumptions which affect these costs. First, we assumed that supplemental question handling requires twice as much use of the collection as compared to question handling. We therefore doubled the per unit cost of collection maintenance applied to supplemental question handling. Secondly, with the exception of the

⁶²Examination and comparison of reference questions handled at the two libraries is outside the scope of this study. Such an examination, however, is likely to be a fruitful area of future research.

⁶³The costs of materials and services might represent a variable cost and be included along with labor costs in the definition of marginal cost. An example of a variable costs which could be included in a calculation of marginal cost is online searching of commercial databases. For NPL Central and the BL&R, online searching and other variable costs are quite small relative to other costs, so the issue is not empirically important.

costs of surveyed labor and collection maintenance, all other costs per supplemental question were assumed to be the same as for overall question handling.⁸⁴

The marginal cost per supplemental question handled is nearly identical for the two libraries: \$30.13 at NPL Central and \$30.08 for the BL&R (see Table 8-2 or Table 8-3). Considering how different the overall question handling costs are, it is particularly interesting to find that the labor costs per supplemental question handled are so close in the two libraries. In conversations, staff at the two libraries did not feel that, on average, supplemental questions were significantly different from questions they received from their local clientele. Despite their intuition, however, it appears that a good deal more staff time is required to handle a supplemental question than a regular question at both libraries. The time spent per supplemental question is very close at the two libraries (see Table 8-1). It would appear that the two libraries deal with supplemental questions of similar difficulty, while their "regular" questions differ considerably.

Table 8-3: Marginal and Average Unit Costs

Category:	NPL Central:		BL&R:	
	Marginal Unit Cost	Average Unit Cost	Marginal Unit Cost	Average Unit Cost
<u>Per Question Handled</u>				
Overall	\$2.90	\$17.28	\$6.96	\$41.64
Supplemental	30.13	52.47	30.08	79.14
<u>Per ILL/Photocopy Request</u>				
Overall	12.29	18.70	6.72	16.21

Source: Table 8-2.

Adding the four non-labor costs to total labor yields the average unit cost of supplemental question handling: \$52.47 for NPL Central and \$79.14 for the BL&R. The average total cost is considerably larger than the marginal cost. Again, the two largest non-labor costs are collection maintenance and other reference.⁸⁵ These costs differ greatly between the two libraries, even though the labor costs per supplemental question handled are virtually identical. As with overall

⁸⁴The costs of surveyed labor allocated to supplemental question handling came from the survey. Largely because of lack of data, we assumed the other labor costs per supplemental question handled were the same as for overall question handling at the two libraries.

⁸⁵We call these two cost categories "non-labor" costs to distinguish them from direct labor costs. Note, however, that they indirectly include labor costs since labor costs are included in the budgets of the Other Reference and Collection Maintenance cost centers.

question handling, the BL&R has much higher costs in these two categories than does NPL Central. The result is that the average total cost per supplemental question handled is fifty percent higher at the BL&R.

8.2 The Costs of ILL/Photocopying

Tables 8-2 and 8-3 give the unit costs of handling ILL/Photocopying requests. As noted earlier, we assumed that these costs were the same for regular and supplemental requests, so we report only one set of cost estimates. In contrast to question handling, the unit costs for ILL/Photocopying are lower at the BL&R. The labor costs are much lower (\$6.72 versus \$12.29 at NPL Central). Even with the higher collection maintenance costs at BL&R, the total cost per ILL/Photocopy request is lower at BL&R (\$16.21 versus \$18.70 at NPL Central). The effect is to make the average costs of IL/photocopy services at the two libraries closer than their marginal costs.

There are two likely reasons for the major difference in marginal (labor) costs for ILL/Photocopying at the two libraries. First, the BL&R handles a much larger volume of ILL/Photocopying transactions than does NPL Central. One would expect economies of scale in processing such transactions to lead to lower unit costs at the BL&R. Second, the BL&R uses cheaper labor to handle ILL/Photocopy requests than does NPL Central. The average hourly cost of surveyed labor handling ILL/Photocopy transactions is \$14.84 at the BL&R and \$16.04 at NPL Central.⁸⁶ The second effect is probably a manifestation of the first. A high volume of transactions permits specialization and the use of cheaper labor.

In percentage terms, materials and services, while much less important than labor and collection maintenance costs, are significant for ILL/Photocopying in both libraries. Materials and services account for \$1.16, or 6.2%, of the total average cost of ILL/Photocopying at NPL Central, and \$1.39, or 8.6%, of the total average cost at the BL&R.

8.3 Compensation Issues

Deciding how much to compensate the two libraries for supplemental question handling and ILL/Photocopying services is a policy decision. The decision rests with the State Librarian and the Library Network Review Board, which oversees and sets policy for the Network. In the next chapter, we present our specific recommendations regarding compensation. In this section, we briefly discuss some of the issues underlying our recommendations.

In the short term, it is recommended that compensation by the State Library should cover, at minimum, the marginal cost of providing these services. The amounts are: (1) approximately \$30 per supplemental question handled at each library, (2) \$12.29 for each supplemental ILL/photocopy request handled by NPL Central, and (3) \$6.72 for each supplemental ILL/photocopy request handled at

⁸⁶These are loaded labor costs, including all benefits. See Tables NJL1-2 and NJL2-2 in Chapter 6.

the BL&R. One could easily argue that costs of materials and services should be added to these labor costs. For question handling, the amounts are relatively small. For ILL/Photocopying services, the addition would be more significant.

The longer term question remains: To what extent should the State Library compensate the two libraries for the average unit cost of maintaining their current collection and staff capacity? The rationale for compensating the two libraries for their collection maintenance and other reference costs is as follows. Both we and the Working Group view collection maintenance and other reference services as integral to providing question handling services. Reference librarians require the services of the Collection Maintenance and Other Reference cost centers to support their ability to perform question handling. An experienced reference librarian can make do with outdated or inadequate collection resources for a period of time by drawing on external staff and information resources. At some point, if information resources continue to erode and become depleted, even the most skilled reference librarian will become increasingly unsuccessful in handling questions at all levels of service.

This study did not attempt to define at what point the return on investment in experienced staff is vitiated by inadequate collections and insufficient time spent on other reference functions. There is no doubt that over time, however, the performance of reference staff will be affected. The same is true if developing specialized resources, education and training, and quality control are neglected. It is, however, an important issue which underlies some of the recommendations presented in the next chapter.

Similarly, if the size and quality of the collection erodes over time, then the library will be unable to provide ILL/Photocopy services. Indeed, the demand for such services is largely a function of collection size and quality. Staff resources devoted to providing these services are largely irrelevant if the items are not available in the collection.

There are many ways that the State can support more than the marginal costs of providing these services. One approach is to compensate for total, rather than marginal, costs of providing supplemental services. This approach recognizes the need to maintain the collection and question handling capabilities of the staff. A second approach is to support capital investment by the two libraries in their collections. This approach involves the State in making capital grants to the two libraries for the purpose of maintaining and expanding their collections. These two approaches are not mutually exclusive.

The motivation behind the second approach is that the State should recognize the importance of building up the capital stock of these two libraries, both their collections and their staff capabilities. In directly supporting collection development, the State can seek to influence the future evolution of these collections in directions which support and enhance their ability to provide statewide services. The State might also take similar steps to support the development of staff capabilities. Recommendations in the next chapter reflect this view.

8.4 Projecting Future Demand for Supplemental Services

Future demand for supplemental services from NPL Central and the BL&R will depend on two broad sets of factors: (1) demographic and economic trends in their service areas, and (2) the future evolution of the New Jersey Library Network. Both sets of factors present problems for making projections.

Table 8-4 gives economic and demographic projections made by Donnelly Marketing Information Service, based upon 1980 U.S. census data for the entire state, as well as for Newark and Trenton. NPL serves the City of Newark. While NJSL is based in Trenton, it serves the entire state. While such projections are undoubtedly subject to error, the overall story is probably robust. Nominal median household income is projected to grow over four percent a year in the State and in each of the two cities. While the projected inflation rate is not given, it must be close to four percent a year, so projected real income growth is nearly zero. The population growth rate is also projected to be very small, even slightly negative in Newark. All in all, these projections do not imply any significant change in the service base for the two libraries.

Projections of the evolution of the Network and its impact on these two libraries are much more difficult to make because it is difficult to predict how the new Network configuration will affect the old patterns of doing business in New Jersey. According to the most recent annual report on the status of the Network, "by the end of 1987, two out of every five libraries in the state that were eligible for Network membership had joined a regional library cooperative [RLC]," for a total of 1,445 libraries.⁸⁷ Clearly, the maturation of the six recently created RLCs will have an impact on the SCLs. Whether the effect will be to reduce or increase the load on NPL Central and the BL&R for supplemental question handling and ILL/photocopying remains to be seen.

The State Library has created a climate for experimentation by allowing the RLCs and their respective membership to try new approaches to delivering services to patrons in their regions. This latitude has created some uncertainty regarding how much question handling assistance and ILL/photocopy support will be required of NPL Central and the BL&R over time and what the division of responsibility should be in the future at the state, regional, and local levels.⁸⁸

The State Librarian, Barbara F. Weaver, in a document stating her vision of the year 2000, clearly sees both the RLCs and the SCLs as integral partners in the Network. While flexibility is desired by librarians in the State, many also seek guidance from the State Library in defining the roles of the SCLs at the

⁸⁷Division of the State Library, Library Network Report for 1987 to the New Jersey Legislature and the State Board of Education. 1987 annual report, 5-6.

⁸⁸Library Network Report, October 1988, 32. (See references).

Table 8-4: Demographic Projections

	1980 census	1987 estimate	1992 projection	Growth rate: 1987-92
<u>New Jersey</u>				
Total population (1000s)	7,364.8	7,616.4	7,770.3	0.4%
Total households (1000s)	2,548.6	2,711.8	2,838.3	0.9%
Median household income (\$1000s)	\$20.0	\$30.5	\$38.8	4.9%
<u>Trenton City</u>				
Total population (1000s)	92.2	91.6	91.8	0.0%
Total households (1000s)	32.5	33.2	34.2	0.6%
Median household income (\$1000s)	\$12.5	\$18.6	\$23.3	4.6%
<u>Newark City</u>				
Total population (1000s)	329.2	310.2	305.5	-0.3%
Total households (1000s)	110.9	107.1	108.3	0.2%
Median household income (\$1000s)	\$10.2	\$14.2	\$17.6	4.3%

Notes:

Projected growth rates in column 4 are percent per year. The data source is Donnelly Demographics on Dialog File 575. Stamford, CT.: Donnelly Marketing Information Services. Search conducted by Harold Dunn in the Governmental Reference Unit, BL&R.

state level and of the RLCs at the regional level as the Network evolves.⁸⁹ Ms. Weaver envisions that:

Direct service improvement anticipated through the regional cooperatives during the first few years will include quicker response to patron requests, wider availability of direct borrowing privileges, and access to a wider variety of materials located in all types of libraries.⁹⁰

By the year 2000, Ms. Weaver projects that "regional information centers will provide access to specialized materials in various formats, with access to world-wide databases."⁹¹ It remains to be seen what the impact of Ms. Weaver's vision will be on these two SCLs.

Twenty-five years ago, Lowell Martin and Mary Gaver called for "a coordinated network of library service over the state."⁹² Today, the State Library is grappling with coordinating the newly created network. The recently published Library Automation Blueprint, prepared by King Research, surveyed libraries of all types in New Jersey to determine their attitude and current ability to participate in an automated network.⁹³

The King study recommended that the RLCs should establish regional processing centers, should process and produce OCLC records for non-OCLC members in their regions, and should "consider publishing a regional database, or some portion of it as a union list."⁹⁴ King also calls for the development of "locator tools," such as the New Jersey Union List of Serials at both the state and regional levels.⁹⁵ Again, the impact of these regional activities on the SCLs is not known.

⁸⁹ "These [RLC] organizations are responsible for determining what kinds of cooperative library services are needed in their regions and contracting with libraries or other agencies to provide those services. In addition, the law [establishing the Network] authorized the State Library to provide, or contract for, statewide services that are more appropriately offered on a statewide rather than a regional basis." Weaver, Vision 2000: Looking Ahead at New Jersey Libraries, February 1986, 27. (See references).

⁹⁰Ibid, 28.

⁹¹Ibid, 53.

⁹²Martin and Gaver. Libraries for the People of New Jersey or Knowledge for All, 1964. (See references).

⁹³Jose-Marie Griffiths, Final Report on the Study to Develop a Library Automation Blueprint for the New Jersey Library Network, 1987. (See References).

⁹⁴Ibid., 95.

⁹⁵Ibid, 96.

We can, however, draw on the California experience. California created a similar second level of regional reference support in the state. Over the twenty years that the regional systems have grown, the two super reference services, BARC and SCAN (operating out of the San Francisco and Los Angeles Public Libraries) experienced a decline in the volume of questions they received. It is generally assumed that the questions which were referred to BARC and SCAN, while fewer, were more difficult to handle --although there has been no study of the nature of the questions handled at the different levels.

Certainly, the existence of the Access Center at the State Library has been a boon to libraries without access to OCLC. It has ensured that NPL Central and the BL&R receive ILL requests via the OCLC ILL subsystem, which "streamlines procedures and significantly reduces paper flow and provides faster service to residents."⁹⁶

There is no doubt that energy and enthusiasm of those involved in the Network will provide forward momentum in the future. As the network matures it will be possible to look back at annual data and determine whether the division of responsibilities and incentives for participation are continuing to stimulate the evolution of the Network. The roles of the NPL Central and the BL&R may change over time, but they will continue to house resources which merit use on a state-wide level. Providing the appropriate level of compensation and investment at the state level will be a key factor in their respective ability to support the information needs of citizens in the State.

⁹⁶Library Network Report, October 1988.

9. RECOMMENDATIONS

Recommendations are divided into three categories: compensation and investment strategies; data collection issues related to improving data reliability; and organizational and administrative objectives and responsibilities. Since the term reimbursement tends to imply payment for all costs incurred, the term compensation is used instead. Investment, in contrast to compensation, is used here to denote the need for capital grants to strengthen existing resources at selected SCLs.

9.1 Compensation and Investment Strategies

Both short term and longer term strategies are recommended for compensating NPL and the BL&R for providing supplemental question handling and supplemental ILL/photocopying services to other libraries in the state of New Jersey. In addition to compensation, there are several recommendations which relate to the issue of state investment in strengthening reference resources (i.e., reference staff training and acquisitions). Cost calculations are based on the 1987 data analyzed for this study and need to be updated for future years (see recommendation 4 below).

A. Supplemental Question Handling

1. In the short term (next fiscal year), it is recommended that NJSL compensate both NPL and the BL&R for at least the marginal cost of supplemental question handling. The marginal cost is the cost of the time spent by "surveyed staff" and "other labor" in delivering supplemental question handling service. The marginal cost, based on 1987 data, is \$30 per supplemental question handled at each of the two libraries.

2. In the medium and long term (next five years), it is recommended that NJSL compensate NPL and the BL&R not only for the marginal cost of handling supplemental questions, but also for some or all of the following costs which are allocable to providing supplemental question handling service: materials and services, imputed rent, other reference, and collection maintenance. If all these costs are added to the current marginal cost, the average unit cost of supplemental question handling would rise to \$52.47 at NPL, and \$79.14 at the BL&R.

3. The compensation formula should be based on an average total number of supplemental questions handled over a period of years, not on data for a single year. It should be adjusted periodically to reflect changes in costs, such as average wage increases, and changes in the volume of supplemental questions handled. When applying the formula, the two libraries should know the amount of compensation they will receive from the State in a given year well in advance of their annual budget cycle.

4. NJSL should meet with staff in each of the two libraries, as soon as possible, to discuss the impact of supplemental question handling on each library's regular question handling service, and the extent to which NJSL should compen-

sate the level of effort involved in "collection maintenance" and "other reference" when associated with handling supplemental questions.

5. Substantive discussions of this nature should be arranged, as needed, in subsequent years to insure communication between NJSL and each SCL.

6. NJSL should consider making capital grants to the two libraries for collection development in specified subject areas which support supplemental question handling. This capital assistance for acquisitions is independent of any compensation for the cost of question handling. The amount of each grant is likely to differ widely depending on the breadth and depth of coverage required in a designated subject area. Acquisitions are likely to be made largely for the reference collection, although titles may also be added to the general collection, given the number of new monographs and series published each year, and the rise in prices, particularly for titles published abroad.

7. If NJSL decides that it is appropriate to make capital grants to SCLs, NJSL should require that each SCL develop a strategic plan to justify collection development in specified subject areas. This plan should compare the library's own resources with those of other libraries in the State and region, and indicate how the funds will be used to support targeted collection development (e.g., proposed amount to be spent on monographs versus serials; monographic series; monographs for reference versus the general collection; and online searching of particular databases). The comparison should be made using an objective approach, such as RTSD's Guidelines for Collection Development, and an impressionistic approach, such as the technique used during the study which involved Characterizing Levels of Reference Resources.⁹⁷ The plan should also present the possibilities for cooperative collection development.

8. In the event that NJSL decides to invest in this targeted collection development, it is strongly recommended that NJSL also invest in staff development, which would involve training staff at each of the SCLs to use the newly acquired materials.

B. Supplemental ILL/Photocopying Service

9. In the short term (next fiscal year), it is recommended that NJSL compensate NPL and the BL&R for supplemental ILL/photocopying at the marginal rate of \$12.29 to NPL and \$6.72 to the BL&R for each ILL/photocopying request.

10. In the medium and long term (next five years), it is recommended that NJSL compensate NPL and the BL&R for the average unit cost of supplemental ILL/photocopying. As in the case of supplemental question handling, the average unit cost of supplemental ILL increases substantially when all of the following costs are bundled with the marginal cost (i.e., labor costs): materials and services, imputed rent, and collection maintenance costs. If these costs are added to the marginal cost, the average unit cost of supplemental ILL would rise to \$18.70 at NPL and \$16.21 at the BL&R.

⁹⁷Guidelines for Collection Development, 1979. A copy of the instrument, Characterizing Levels of Reference Resources, appears in an appendix.

11. The compensation formula should be based on an average total number of supplemental ILL/photocopies handled over a period of years, not on data for a single year. It should be adjusted periodically to reflect changes in costs and volume of ILL/photocopy requests handled. When applying the formula, the two libraries should know the amount of compensation they will receive from the State in a given year well in advance of their budget cycle.

9.2 Data Collection Issues

The following recommendations address both the issue of data reliability and the need for research on the characteristics of the requests for supplemental question handling. For a more detailed discussion, see Chapter 4.1

12. Data on the number of supplemental questions and ILL/photocopies handled by each library annually should be gathered on a regular basis, either through logs or sample survey techniques. A distinction must be made between supplemental, regional, and local questions handled.

13. NJSL should contract with an outside consultant to accomplish a number of tasks, including the following:

- 0 Review the sampling methodology used in the past;

- 0 Propose the frequency and sample size needed to collect data on the number of supplemental questions and ILLs/photocopies handled in the future;

- 0 Determine how much time it takes each of the two libraries presently to collect survey data required;

- 0 Propose ways of meshing or streamlining data collection for SCLs and the RCLs so that those libraries which perform both functions, as is the case for NPL, do not have conflicting data collection requirements and ambiguities.

- 0 Propose how to strike a workable balance between the need for reliable data and the costs to the library of collecting data.⁹⁸

- 0 Review the newly recommended definitions prepared by the New Jersey Library Network's Committee on Policy, Procedures, and Protocols to determine what impact these definitions will have on data collection in the future;

⁹⁸There are three kinds of costs: cost expressed in terms of time spent; the cost of the interruption in the work flow; and the chilling effect of intruding on the question negotiation process.

0 Develop a clear set of definitions, procedures, and forms for counting and coding the data in the future;⁹⁹ and

0 Train librarians to follow the procedures and use the forms developed.

14. It is appropriate for NJSL to oversee and coordinate the collection of data to ensure standardization for reporting purposes.

15. NJSL should fund a study to determine the characteristics of "regular" and "supplemental" questions and ILL/photocopying handled by the two SCLs. The study should focus on resource requirements (the mix of staff and levels of collection) required for handling the different types of questions and ILL/photocopying requests to determine if there are any significant differences, on average, in handling the two types of requests, such as amount of time required, type of staff, and type of materials consulted. The scope of the study should include:

0 A comparison of supplemental questions handled under state contract with regular questions handled for local clientele by each of the two SCLs;

0 A sample of supplemental questions handled by RCLs should also be examined to determine whether SCLs get more complex and more difficult supplemental questions as a result of the RCLs taking the first cut at handling supplemental questions in their respective regions;

0 A comparison of supplemental ILL/photocopying requests handled under state contract with regular ILL/photocopying requests handled for local clientele by each of the two SCLs.

16. NJSL should fund a study on the use of the collections in the two libraries. The study should focus on two major issues: in-house use of the collection and use of the collection by reference staff, both for question handling and for other reference functions. Data should be collected on the number of times the collection was consulted while handling the question, or an ILL/photocopying request in order to develop more reliable use equivalents. These data will be useful in fine-tuning inputs to the cost finding model.

9.3 Organizational and Administrative Objectives

17. In order to foster the development of the Network, NJSL should encourage meetings by the SCLs to compare collection strengths, particularly when two SCLs are each responsible for providing service in the same designated subject area. For example, staff at BL&R in charge of the New Jersey collection, and staff at NPL Central in charge of the Jerseyana collection, should visit one another's collections in order to gain a working knowledge of their respective strengths and weaknesses.

⁹⁹New definitions, procedures, and forms will be implemented by the LDB in 1989 and training will be provided the LDB as well.

18. In addition, NJSL should pay travel expenses to enable designated reference staff at each of the two libraries to make site visits to compare their designated subject collections with significant collections in neighboring states. For example, the reference staff at the Business Library at NPL should make a site visit to the Business Collection at Brooklyn Public Library. Widening the horizons of reference staff will benefit collection development and service delivery in the long term.

19. NJSL should address the problems arising from the Network goal of enabling libraries in the state to choose the "optimum direct route" to gain support from the SCLs. While the subject focus of the Network clearly signals where the "optimum" resources are likely to be found, the same is not true when seeking support from an SCL for "general reference information." NJSL should convene a meeting with staff from both NPL and the BL&R to discuss the problems each is having confining the provision of "general reference information" to the staff and collections designated under the terms of their state contract.

20. It is recommended that NPL and NJSL review the parameters of the service currently being provided by NPL Central under the terms of NPL's contract to provide general reference information statewide. It may be more productive to expand the scope of the contract with NJSL to include the Sciences Division along with the Humanities Division as an option for general reference information rather than trying to separate or inhibit the flow of supplemental reference directly to and between the Sciences and Humanities Divisions.

21. Similarly, NJSL should assist the BL&R to clarify its conflicting roles as an SCL providing service to specified groups within the Network and its statutory obligations to serve all citizens in the State.

22. NJSL should assist NPL and the BL&R in their data collection activity. NJSL should convene a series of meetings explaining how the Network functions and the reason why New Jersey libraries must identify themselves when contacting a SCL.

23. NJSL should clarify for staff at NPL Central and the BL&R that they are not responsible for citation and location service under the terms of their state contract.

24. NJSL should continue to publish the Network newsletter, Network News, in order to report on Network developments, administrative procedures, and to highlight resources available through the Network. It should be sent to all members of the Network and to other interested parties.

25. In the future, information generated by applying the question handling model systematically to the question handling process could be used as a management tool for planning and allocating staff time and acquisitions funds in order to deliver both regular and supplement question handling. It would also be very useful if NPL and the BL&R followed up this study by collecting data to calculate the costs of delivering different levels of question handling service, which are described in the model. The scope of this study was limited to costing supplemental reference alone.

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APPENDIX 1: ABBREVIATIONS AND DEFINITIONS

This dictionary is divided into three parts:

1. Abbreviations and definitions of organizational entities;
2. Definitions of general reference and ILL-related functions; and
3. Definitions of economic and accounting terms.

These terms are all used in the body of the report. Frequently used abbreviations are defined here. Some of the terms and concepts were developed during the course of the study, while others are standard terminology. The terms used in the question handling model are an outgrowth of a study conducted by Barbara M. Robinson on reference and reference referral in the state of California in 1986.

Some of the terms, defining general reference and ILL-related functions, are drawn from the New Jersey Library Network Committee on Policies, Procedures, and Protocols (the Three Ps) Working Draft Definitions, Revised, October 1987. They were refined by the Working Group for the purpose of this study. The Three Ps subsequently published a Final Report to the State Librarian, August 1988, which appeared after the Working Group had already drawn on the 1987 version.

Finally, the economic and accounting terms come from a number of published sources. They have been compiled from a variety of sources. Where a published definition has been quoted extensively, the source is noted at the end of the entry. In many cases, we have drawn on more than one source in constructing a definition. The sources are:

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1. Abbreviations

ACCESS CENTER of the NJSL is separately funded to handle ILL and citation and location requests received from any library in the State. Access to the OCLC ILL subsystem.

BL&R is the Bureau of Law and Reference. These are two divisions within the New Jersey State Library (NJSL) which provide law and governmental reference service to state employees, as well as to all citizens in the state of New Jersey. Also included in the BL&R is the New Jersey Collection, the U.S. Documents Collection and the Foundation Collection.

NPL is the New rk Public Library system including the branches.

NPL Central refers to the main public library facility in Newark, located on Washington Street, the Business Library located on Commerce Street, and three buildings which provide space for remote storage of the NPL Central collection. NPL Central houses the Art and Music Division, New Jerseyana Collections, U.S. Documents, U.S. Patents, as well as the Humanities and Sciences Division.

NJSL is the entity located in Trenton which encompasses the Bureau of Law and Reference (BL&R), the Library of the Blind and Handicapped, and the Bureau of Library Development.

Network is the New Jersey Library Network, established in 1984. It is multi-type, regional, and cooperative.

Three Ps refers to the New Jersey Library Network Committee on Policies, Procedures, and Protocols.

RCL is a Regional Contract Library which provides regional services to members of the Network, under contract with a RLC.

RLC is a Regional Library Cooperative of which there are six in New Jersey. They cover six regions in the state and receive state funds which they use to contract for regional services with RCLs.

SCL is a State Contract Library delivering reference, ILL, and online searching under contract to NJSL. NPL and the BL&R are both SCLs.

2. Definitions of Reference and ILL-Related Functions

CITATION, BRIEF involves less than five minutes to provide citation service.

CITATION, EXTENDED involves more than five minutes to provide citation service.

CITATION SERVICE is the process of verifying, completing, and/or correcting the bibliographic information about a specific work.

INTERLIBRARY LOAN is a form of resource sharing by which one library's collection is used in response to a request for a specific item on behalf of a client from another library. These days, most ILL requests are routed via the OCLC ILL subsystem, although some ALA ILL forms are still received by both NPL and the BL&R.

INTERLIBRARY PHOTOCOPYING is a form of resource sharing by which items in one library's collection are copied in response to a request for a specific item on behalf of a client from another library. Photocopying is only one of a variety of copying approaches available. It used loosely to include both photocopying, as well as fiche-to-fiche duplication; photographic reproduction; fiche-to-hard copy; telefacsimile; and CD ROM printout.

LOCAL REFERENCE See **REGULAR REFERENCE**.

LOCATION SERVICE is the process of identifying libraries which own a specific title, when the library receiving the request either does not own it, cannot find it, or cannot spare it at the time of inquiry. Location service may also include identifying agencies, other than libraries, through which the work may be loaned, purchased, or consulted in-house.

QUESTION ANSWERING See **QUESTION HANDLING**.

QUESTION HANDLING Question handling is the activity which occurs as a result of an exchange between a client and a librarian. The client enlists the help of a reference librarian, either over the telephone, in person, or occasionally in writing. The librarian, in handling the question, acts as a mediator between the client and the information resources. This term is used in lieu of "question answering" because once staff are involved in handling a question there is a

cost incurred whether the question is answered, referred, partially answered, or not answered at all.

REFERENCE SERVICE is the mediated response by reference staff to a client question, which may be posed by telephone, or in-person. The reference staff mediate access to information on behalf of the client, in an effort to answer the client's question. In this report, however, reference is not one service but rather a range of services, delivered with a mix of resources which are described in the question handling model.

REGIONAL REFERENCE refers to the provision of on-site, walk-in, or telephone reference which is provided by a Regional Contract Library under contract to a Regional Library Cooperative.

REGULAR ILL refers to the process of borrowing on behalf of requests placed by local clientele whose requests cannot be filled using local resources. To the library receiving a request, it is a "supplemental ILL." Regular ILL is also defined as the quid pro quo, or reciprocal interlibrary loan, which occurs when libraries borrow and lend to one another, in roughly the same proportion. In either case, there is no special state subsidy. See also Supplemental ILL.

REGULAR REFERENCE refers to the provision, by NPL Central and the BL&R, of reference to their own local, or regular, clientele.

REGULAR SERVICE refers to service provided by an SCL to their local, or regular clientele, and for which they receive no state subsidy.

RESEARCH, PRIMARY refers to an inquiry, or an investigation, which involves extensive firsthand, independent, and original study, in a quest to uncover new knowledge.

RESEARCH, SECONDARY refers to an extensive and systematic effort to uncover knowledge derived from primary sources. The result is an explanation of research findings rather than a clear-cut answer. This level of effort is sometimes called extended reference, a term which we do not use because it muddies the difference in anticipated output.

SUBJECT INTERLIBRARY LOAN involves an ILL request for materials on a particular subject rather than for a particular title. If a reference librarian becomes involved in handling this request, it is no longer an ILL request, but rather a reference request. For the purpose of this study, supplemental ILL refers to that portion of total ILL requests for which NPL Central and the BL&R receive compensation from NJSL for providing service to other libraries belonging to the Network. NJSL also provides a "net-plus" subsidy to any library in New Jersey providing 10% more ILLs in-state than borrowed in-state.

SUPPLEMENTAL REFERENCE refers to the provision of reference service to Network member libraries in New Jersey, in return for compensation, under the terms of a contract with NJSL.

SUPPLEMENTAL SERVICE refers to the subsidization by NJSL of reference and/or ILL service provided by SCLs, such as NPL Central and the BL&R, to other li-

braries in New Jersey, under the terms of their annual contract with NJSL. It does not refer to "regional" reference services, provided by the Regional Contract Libraries.

SUPPLEMENTAL ILL is that extra service, provided by large net lenders, who will not gain as much as they give. NJSL provides some compensation to net lenders in order to encourage them to continue to fill ILL requests from New Jersey libraries. See also **Regular ILL**.

3. Definitions of Economic and Accounting Terms

AGGREGATE Referring to the sum total of the whole.

AMORTIZATION Provision for the repayment of debt by means of accumulating a fund through regular payments. See also **DEPRECIATION**.

ASSET On a balance sheet of a company, assets are everything that a company owns which have a monetary value.

AVERAGE See **MEAN**.

AVERAGE COST See **COST, AVERAGE**.

BUDGET A forecast of receipts and planned allocations of expense for a given period of time.

BUDGET, LINE ITEM The most common budget format which is arranged with each category of input expenditure identified on a separate line.

BUDGET, PROGRAM A method of budget presentation which categorizes expenses by program (activity, service, or product) rather than by inputs.

BUNDLING A marketing method whereby a collection of products or services are offered for sale as a package or unit, with no possibility of separate purchase.

CAPITAL refers to an inventory or a stock of plant, equipment and other productive resources held by a business firm, an individual, or some other organization. (Baumol and Blinder).

CAPITAL COST See **COST, CAPITAL**.

CAPITAL GOODS See **GOODS, CAPITAL**.

CAPITAL STOCK See **CAPITAL**.

COST In everyday speech, refers to the expenses incurred in production. See also **OPPORTUNITY COST**.

COST, AVERAGE Calculated by dividing total costs of a given number of units of output by that number of units. The average cost is sometimes referred to as the unit cost. Average cost is calculated by dividing total dollar costs by the

total volume of service provided. Average costs consist of both "fixed" and "variable" costs. See also COSTS, FIXED and COSTS, VARIABLE.

COST, CAPITAL Investments in purchasing fixed assets, such as property, plant, equipment, or long-term research and development.

COST, DIRECT Labor and materials that can be directly identified in the product produced or the service delivered. In the study we talk about "direct" costs directly associated with the output of a given cost center.

COST, FIXED Costs which are not related to the level of production, such as debt service, mortgage payments, and overheads.

COST, FULL All costs, both direct and indirect.

COST, IMPUTED An estimate of the monetary value of an input not purchased in a market (e.g., provided in-kind).

COST, INDIRECT Costs which are not easily seen in the product or service. Examples are insurance, taxes, rent, and utilities which are also referred to in this study as overhead costs.

COST, MARGINAL Starting from the current volume of services provided, the concept of marginal cost describes the cost increment required to produce an additional unit. For example, the incremental cost of handling one more ILL request or one more question.

COST, OPERATING All annual costs, excluding any capital costs.

COST, OPPORTUNITY The value of the alternatives or other opportunities foregone in order to achieve a particular objective. In economics, it is the measure of what has to be given up in order to achieve something. Another way of defining it is the price or rate of return that the best alternative course of action would provide.

COST, VARIABLE Cost which varies directly with the rate of output, principally labor costs, raw materials costs, and energy. The distinction between variable and fixed costs depends upon the time horizon. In the long run, all costs are variable. For example, over the long run, one can choose to affect rent costs by changing location or size of physical plant. Similarly, one can choose to change the size of the collection over a period of years. In this study, location, physical plant, and collection size are not assumed to be subject to change and therefore costs associated with each of them are treated as fixed. See COST, FIXED.

COST, TOTAL Fixed costs plus variable costs.

COST ACCOUNTING Procedures by which expenditures are related to units of output.

COST ACCOUNTING SYSTEM A procedure for recording operations, times, costs, and amount of work performed, together with a procedure for processing, re-

porting on, and acting upon the resulting data. It must include provision for: representing all sources of costs, including the salaries of staff and administrative personnel, capital investment, and all categories of expenses; measuring work performed in terms of both quantity and, for library operation, quality and complexity; and recording of the time required to handle given operations. (Becker and Hayes in ASLIB Reader Series volume 5).

COST ALLOCATION Refers to the allotment of whole items of cost (direct expenditures) to cost centers or cost units; unless indicated excludes indirect expenditures which are apportioned.

COST-BENEFIT ANALYSIS A technique which attempts to set out and evaluate the social costs and social benefits of investment projects, to help decide whether or not the projects should be undertaken. A major problem in cost-benefit analysis is the evaluation of certain types of cost and benefits. First is the problem of measurement in physical units (e.g., how do we measure 'the amount of pleasure' derived from a particular piece of scenery?). Second is the problem of reducing all costs and benefits to 'a common unit of account.' Since the 'unit of account' most commonly used is money, this generally becomes the problem of valuing costs and benefits in monetary terms. Ultimately, however, many of these problems of valuation can only be resolved by political decision, which hopefully reflects society's evaluation of the costs and benefits which are not directly measurable in money terms.

This should not, however, be translated into the proposition that, since it is all a matter of politics anyway, the cost-benefit analysis is irrelevant and unnecessary. Careful itemization of all relevant classes of costs and benefits, quantification of what can reasonably be quantified, and a full specification of the complete set of alternatives to the project under consideration, not only provide a much sounder basis for an eventual decision, but also permit an estimate to be made of the implicit money values that must be attached to particular non-monetary benefits and costs in order to justify a particular project. Thus cost-benefit analysis should be viewed as a means of making the best possible information available to governmental decision-makers, rather than as a mechanical means of taking decisions. (Penguin)

COST CENTER Organizational unit which is a discrete unit for the purpose of accounting. It may or may not be a revenue earning unit. See also **PROFIT CENTER**.

COST CONTROL See **COST ACCOUNTING**.

COST EFFECTIVENESS Ability to generate sufficient value to offset an activity's cost. In the case of a business, the value can be measured by earnings.

COST ESTIMATE An approximate calculation of the charges or cost to supply goods or services, particularly repair work. Based on incomplete or imperfect information.

COST FINDING A method of cost determination using available financial data and recasting and adjusting it to derive the cost data needed; less formal process than cost accounting.

COST RECOVERY A method of pricing which seeks only to recoup costs of production.

COSTING See **COST ACCOUNTING**.

COSTS, CLASSIFICATION OF The basis of all cost accounting systems, it is the identification of each item of cost, and the systematic placement of like items of cost together according to their common characteristics.

DEPRECIATION (1) A decrease in value of a capital good, or asset, because of use, deterioration, or obsolescence; (2) A method of allocating the initial cost of an asset over time. See also **AMORTIZATION**.

DIFFERENTIAL COSTING The increase or decrease in total cost that results from any variation in operations. Concerned with the effect on costs and revenue if a certain course of action is taken; eliminates residual costs which are the same under each alternative and therefore irrelevant to the analysis.

DIRECT COST See **COST, DIRECT**.

EFFECTIVENESS See **COST EFFECTIVENESS**.

EFFICIENCY Quantitative measure of the relationship of outputs to inputs. An efficient use of inputs implies that the maximum level of output is achieved with the given inputs.

FIXED COST See **COST, FIXED**.

FULL COST See **COST, FULL**.

GOODS, CAPITAL goods are goods, such as machinery or equipment, that can be used in the production of other goods.

GROSS AMOUNT Total amount of something without accounting for costs, taxes, depreciation, or loss.

IMPUTED COST See **COST, IMPUTED**.

INDIRECT COST See **COST, INDIRECT**.

INPUT Goods and services used in production.

INTERMEDIATE INPUT Is a produced good which is used by other producers such as steel sold to an automobile company. For example, the services provided by the collection maintenance, and other reference cost centers are intermediate inputs for the question handling cost center.

INTERMEDIATE OUTPUT Is output which is treated as an intermediate input in the production process or in service delivery.

INVESTMENT Technically defined as expenditure on real capital goods. In every day usage it also means purchase of any assets.

LINE ITEM BUDGET See BUDGET, LINE ITEM.

MARGINAL COST See COST, MARGINAL.

MEAN The arithmetic average of a series of numbers.

MEDIAN The middle score in a set of numbers.

MODEL is a representation of cause-and-effect relationships, which are seen "up close" so that one can simulate a real world situation and experiment in order to see how the model behaves under different circumstances. From these experiments, modelers make educated guesses as to how the real-life version will perform. There are all kinds of models, ranging from children's toys, to engineering models, to economic models. In the course of this study we developed two: a question handling model, and a cost finding model.

OPPORTUNITY COST See COST, OPPORTUNITY.

OUTPUT Good or service produced. May include a dimension of quality.

OVERHEAD The aggregate of indirect costs which has to be absorbed by all cost units. See also COSTS, INDIRECT

PRICE (1) Value of a product to consumers, converted into dollars and cents. (2) The amount of money that will purchase a definite weight, or other measure of a commodity.

PRICE INDEX A statistic measuring the changes in the price of an individual good, or a collection of goods, over time.

PROFIT CENTER An organizational unit which earns revenue and incurs related costs. Separate accounts are maintained for such units in order to track net profitability, whether positive or negative.

PROGRAM BUDGET See BUDGET, PROGRAM.

QUALITY That which fits a product to a given use.

QUALITY CONTROL An approach to production (or service) control in which the product (or service) is inspected to determine if it meets specified standards.

QUANTITY Amount or number.

SAMPLE Group of items chosen from a population. In statistics, it is used to estimate the properties of a population.

SERVICE The supplier's ability to comply with promised delivery dates, specifications, and technical assistance.

TRADE-OFF An exchange relationship denoting how much of A is needed to obtain a unit of B. See also **COST, OPPORTUNITY**.

TIME-AND-MOTION STUDY Measuring the time and motions necessary for the completion of specific job-related tasks.

TOTAL COST See **COST, TOTAL**.

UNIT This may be a single article, a pair, a set, a length, a volume, a component, of an end product, or the end product itself. It may or may not be the same as the unit of purchase, supply, production, or shipment.

UNIT COST See **COST, AVERAGE**.

VARIABLE COST See **COST, VARIABLE**.

VALUE Quantity of one thing that will be given in exchange for another.

WORKLOAD Measure of the amount and types of work performed by an individual within a given period of time. It is both a quantitative measure of the total work performed and a qualitative measure of the person's perception of his/her ability to perform the work.

APPENDIX 2: SURVEY INSTRUMENTS

March 20, 1988
Final edit
Dane comments reflected 3/17/88
Corrected 5/16/88 p.3 and p.6

**A Profile by Staff Member:
Time Spent on State Contract Library Duties In a Typical Week in 1987**

Questionnaire designed by Barbara M. Robinson, Consultant. To be administered by Marianne K. Avery, William J. Dane, Sallie B. Hannigan, Robert Blackwell, and Larry Schwartz,

Date Interviewed: _____ Interviewer: _____

Interviewee: _____ Job Title: _____

Full time or Part Time: circle one

* Vacation Days Earned in 1987: _____

Interviewee: _____

Date: _____

I. PROFILE OF 100% TIME SPENT DURING A TYPICAL WEEK:

In a typical week at NPL account for 100% of your time by breaking it down by all tasks and activities (reference and non-reference) for that week:

A. REFERENCE-RELATED TASKS:

<u>Task/Activity:</u>	<u>% Time Per Week:</u>
1. Question Handling (includes online searching):	1. % _____
2. Developing Specialized Resources, includes: collection development -- reviewing and selecting activities, exclusive of ordering, processing, and cataloging); and developing bibliographies, union lists, home grown indexes, vert. files:	2. % _____
3. Education and Training of librarians -- either teaching others on staff, or learning via inservice training, outside workshops, courses, prof. meetings:	3. % _____
4. Management -- includes quality control (e.g., reviewing others' work); supervising ref. staff; and managing ref. services (e.g., planning, organizing, decision making, communicating, controlling, budgeting)	4. % _____
5. Special Projects (describe):	5. % _____
6. Consulting -- advise outside clientele (e.g., how to use Bureau's resources or serve own clientele):	6. % _____
7. Collecting and Analyzing data on reference service:	7. % _____
8. Reference Duties Related to ILL -- not reported above (e.g. responding to a "subject ILL request referred by Lending, or bibliographic verification):	8. % _____
9. Other reference related duties - not reported above (e.g., xeroxing material to support question handling):	9. % _____
SUBTOTAL (A. REFERENCE):	A. % _____

Interviewee: _____

Date: _____

B. NON-REFERENCE TASKS:

<u>Task/Activity:</u>	<u>% Time Per Week:</u>
10. Other non-reference related duties (describe):	10. % _____
11. Other non-reference related duties (describe):	11. % _____
12. Other non-reference related duties (describe):	12. % _____
13. Other non-reference related duties (describe):	12. % _____
14. Collection maintenance (e.g., ^{first-time} shelving, shelf-reading, binding, ordering, processing, acquisitions, weeding, cataloging, preserving, repairing).	14. % _____
15. ILL duties -- non-reference related.	15. % _____

IF YOU ASSIGN A PERCENTAGE, GO TO SECTION III.

SUBTOTAL (B. NON-REFERENCE): B. % _____

GRAND TOTAL (A&B): %100

Interviewee: _____

Date: _____

II. PROFILE OF PERCENT(%) REFERENCE-RELATED TIME SPENT ON SUPPLEMENTAL REFERENCE DURING A TYPICAL WEEK:

Of the TIME spent on reference-related activities, described above in Section I., estimate the PERCENT(%) BY TASK spent providing SUPPLEMENTAL REFERENCE (under the 1987 State Contract). Since each row is a percent of the percent estimated in Section I, each answer stands alone. (A spreadsheet will calculate the values).

REFERENCE-RELATED TASKS:

SUPPLEMENTAL REFERENCE:

Task/Activity:

% of Reference-Related Work Time
Devoted to SUPPLEMENTAL REFERENCE:

- | | |
|--|------------|
| 1. Question Handling (includes online searching): | 1. % _____ |
| 2. Developing Specialized Resources: | 2. % _____ |
| 3. Education and Training of librarians: | 3. % _____ |
| 4. Management -- includes quality control, supervising ref. staff; and managing ref. services. | 4. % _____ |
| 5. Special Projects: | 5. % _____ |
| 6. Consulting: | 6. % _____ |
| 7. Collecting and analyzing data on reference service: | 7. % _____ |
| 8. Reference Duties Relating to ILL -- not reported above (e.g., responding to a "subject ILL request referred by Lending, or bibliographic verification): | 8. % _____ |
| 9. Other Reference Related Duties -- not reported above (e.g., xeroxing material to support question handling): | 9. % _____ |

ADDITIONAL COMMENTS:

Interviewee: _____ Date: _____

III. PROFILE OF STAFF INVOLVED IN INTERLIBRARY LOAN AND/OR PHOTOCOPYING IN LIEU OF LOANING IN 1987:

In a typical week at NPL in 1987, describe all the interlibrary loan, photocopying, and other responsibilities you have (e.g., booking meeting rooms) for that week:

A. PROCESSING INCOMING ILL/PHOTOCOPYING (in Lieu of Loaning).

Check whether yes, you do it, or no, you don't:

<u>Task/Activity:</u>	<u>Yes</u>	<u>No</u>
1. Receive/sort incoming ILLs (includes handling OCLC, and non-OCLC via telephone, mail):		
2. Reject if not loaned, or kick back to OCLC-ILL:		
3. Search items with complete citations -- go to shelves to determine status ("in," "out," etc.)		
4. Verify <u>briefly</u> (less than 5 minutes) incomplete cite. and additional holding locations:		
5. Forward incomplete cite. to ref. staff and receive complete cite. for process. loan/ or reject if N/A:		
6. Forward Subject ILL to ref.staff:		
7. Search circ. status (e.g., in/out/lost, reference only):		
8. If out, kick back to OCLC ILL:		
9. Provide status report to requestor:		

B. FILLING INCOMING ILL/PHOTOCOPYING (in lieu of loaning):

10. Spend time on record keeping for processing:
11. Pick item from shelf:
12. Charge out of circ. system:
13. Or Photocopy -- if non-circulating, or if need to make xeroxed copy to add to collection, or needed in different format (e.g., fiche to xerox):
14. Route/Take (?) to shipping:
15. Wrap for type of shipment (Comet, USPS, other):

Interviewee: _____ Date: _____

C. PROCESSING RETURNED ILLS:

Task/Activity: _____

Yes, I do this. No, I don't
(check one column for each #)

16. Unwrap/inspect:

17. Discharge:

18. Reshelve:

19. Or repair/clean:

20. Route to Order Dept.
to replace if damaged:

III. PROFILE OF STAFF INVOLVED IN INTERLIBRARY LOAN AND/OR PHOTOCOPYING IN LIEU OF LOANING IN 1987 (continued):

D. SUMMARIZE % TIME SPENT ON incoming Interlibrary Loan/Photocopying Requests vs. TIME SPENT ON NPL's own outgoing ILL/photocopying requests, and on other ACTIVITIES:

1. Estimate the total time spent on
incoming ILL/Photocopying Requests:

% _____

2. Estimate total time spent on outgoing
(initiated by the Bureau) ILL/Photocopy
requests:

% _____

3. Estimate total time spent on non-ILL/
Photocopy activities and identify what
those activities are (describe):

% _____

GRAND TOTAL:

% 100

March 6, 1988

Characterizing Levels of Reference Resources at the Newark Public Library

Introduction:

The purpose of this exercise is to define, in comparative terms, the reference resources being applied by the NPL to satisfy the terms of the 1988 contract between NPL and the New Jersey State Library (NJSL). Currently, NPL provides both "subject reference service," directly to Library Members of the New Jersey Library Network (Network), and "general reference information" indirectly to Members of the Network, via a Regional Contract Library.

This packet includes a set of instructions and a form for completing the exercise. The analysis is limited to the following subject areas: art; business; music; New Jersey; U.S. Patents; and U.S. Documents. It does include an analysis of the resources involved in providing "general reference information" as well. Some of those resources include Humanities Reference Staff.

The terms for describing the levels of reference resources, which are also to be used when comparing the level of resources available at NPL, are:

- 0 Garden variety (GV);
- 0 State-of-the-practice (SOP);
- 0 Advanced-state-of-the-practice (ASOP); and
- 0 Super reference (SR).

Before you can apply these terms, however, you need to adapt them. They appear in Working Paper #1 as generic public library resource levels and need to be refined so that they characterize the particular type of subject resource you are analyzing (e.g., a public library art reference resource). Bear in mind that "reference resources" include both staff resources and information resources.

You will be refining all the categories of resource levels, from GV through ASOP and perhaps even SR, as appropriate for that subject area. The highest level you describe for a subject area will be the standard. When you refine your terms to characterize each subject area, think not only of reference resources at NPL, but also of the range of resource levels which exist for the subject you are describing in a variety of public libraries. If it is appropriate to provide examples of other types of library (e.g., academic or special library) which are the standard, do so.

Characterizing Levels of Reference Resources at the Newark Public Library

Instructions:

1. Select and describe each of the following contract subject areas, which constitute the provision of "subject reference service" under the terms of the 1988 contract between NPL and NJSL, as well as the resources used to satisfy the provision of "general reference information" services:

0 Art;

0 Business;

0 Music;

0 New Jersey;

0 U.S. Patents; and

0 U.S. Documents; as well as

0 The components of general reference information, e.g.,

-- Humanities Reference Staff;

-- Humanities Reference Collection;

-- Humanities General Collection;

-- Other NPL resources (specify which staff and collections); and

-- Other external resources.

2. Read the generic definitions of resource levels, which appear in Working Paper #1;

3. Adapt the generic definitions of resource levels to describe the resources required at each level for the subject area you are describing (e.g., public library art collection). The highest level which applies will become the standard you have in mind for comparing NPL's reference resources in that subject area, as well as those of other libraries in the same subject area.

4. Include on, or attach to the form, your modified definitions. Be sure to specify for which subject the resource levels apply.

5. In your definitions, identify examples of libraries for each resource level in order provide concrete examples of where resources at each level presently exist. The libraries may either be in-state or out-of-state.

6. Compare NPL's subject area resources to the standard in that subject, which you developed above, and decide where NPL's resources fit. Remember, to make the comparison, you must:

- a. Select the library with the "highest level of reference resources" in the subject selected as your standard. Be sure to name the public library you are thinking of as your standard.
- b. Compare NPL resources to that standard and determine your "highest level" against the standard.
- c. Identify, by name, other public library reference resources which are comparable to NPL's "highest level," if there are any.
- d. Identify, by name, other public library reference resources which are at a "lower level of resources" than NPL's in that subject area.
- f. To characterize the highest level of resources, use either the term "Advanced-State-of-the-Practice" or "Super Reference," and use "Garden Variety" (GV) to describe the lowest level of resources. "State-of-the-Practice" describes the status quo for resources at above GV and below ASOP.

Characterizing Levels of Reference Resources at the Newark Public Library:

**Work Sheet for Characterizing the Levels of Reference Resources
at the Newark Public Library**

Respondent: _____

Date: _____

Title: _____

1. Circle that "subject reference resource" which you are describing in comparative terms (one per form):

Art:

Business:

Music:

New Jersey:

U.S. Patents:

U.S. Documents:

2. Or circle that "general reference information" resource which you are describing in comparative terms:

Humanities Reference Staff:

Humanities Reference Collection:

Humanities General Collection; and/or

Other NPL Resources used to provide "general reference information under the terms of the 1988 NPL contract with NJSL.

Work Sheet for Characterizing the Levels of Reference Resources

Date: _____

Name of Respondent: _____

Subject Area: _____

Position the resource selected in the following matrix and fill in the boxes:

Name of
library:

Level of
resource:

Standard
(Indicate
which is
highest)

GV

SOP

ASOP

SR

Xerox (from Working Paper #1) and edit the attached definitions of GV, SOP, ASOP, and Super Reference to describe the subject you are characterizing. Attach it to this form and return to:

Barbara M. Robinson
8018 Riverside Avenue
Cabin John, MD 20818

Thank you for your assistance.